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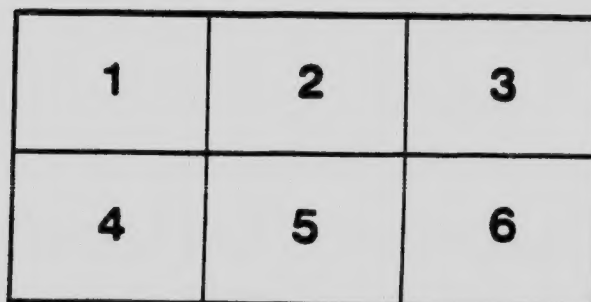
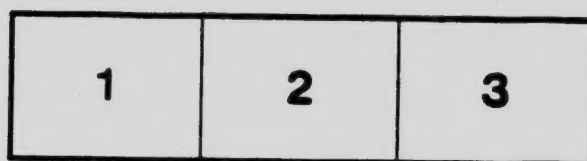
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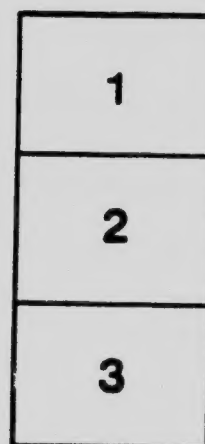
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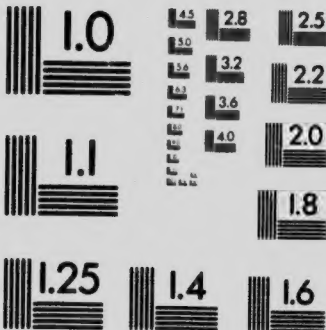
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THE
PRODUCTION OF IRON AND STEEL
IN
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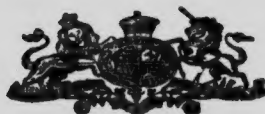
During the Calendar Year

1916

JOHN McLEISH, B.A.

Chief of the Division of Mineral Resources and Statistics.

BARTLEY, GREER & ASSOCIATES
Port Arthur, Ontario



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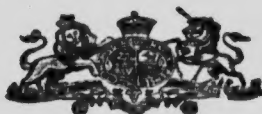
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**ADVANCE CHAPTER OF THE ANNUAL REPORT ON THE
MINERAL PRODUCTION OF CANADA, DURING THE
CALENDAR YEAR 1916.**

*(Tons used throughout this report are short tons of 2,000 pounds, except where
otherwise stated).*

IRON AND STEEL.

INTRODUCTORY.

The war's demands for steel has had the effect of stimulating Canadian production of pig-iron and steel to larger outputs than any previously recorded. This, however, is an industry based largely on iron ores obtained outside of Canada. The actual shipments of iron ores from Canadian mines was less in 1916 than in the previous year, notwithstanding the higher prices in effect, and the total was less than 14 per cent of the entire iron ore consumption in blast furnaces and steel plants. The recorded exports and imports of iron and steel products were considerably higher than in either of the two preceding years.

Prices of practically all iron and steel products increased between January and December by amounts ranging from 40 to over 75 per cent as shown by the accompanying monthly price record quoted from the Iron Trade Review of Cleveland.

Summary of Iron and Steel Statistics, 1913-1916.

	1913.	1914.	1915.	1916.
Iron ore shipped..... Short tons	307,634	244,854	398,112	275,176
Canadian iron ore charged to blast furnaces..... "	139,436	182,964	293,305	221,773
Imported iron ore charged to blast furnaces..... "	2,110,828	1,324,326	1,463,488	1,964,598
Iron ore charged to steel furnaces..... "	55,018	37,686	74,872	55,059
Pig-iron made..... "	1,128,967	783,164	913,775	1,169,257
Pig-iron and ferro-alloys, exported..... "	6,326	19,063	26,545	46,106
Pig-iron imported..... "	236,769	78,680	47,842	58,130
Ferro-alloys made..... "	8,075	7,524	10,794	28,628
Ferro-alloys imported..... "	30,355	22,147	13,758	14,777
Pig-iron and ferro-alloy consumption..... "	1,397,840	872,452	959,254	1,255,218
Pig-iron used in steel furnaces..... "	913,722	619,030	747,834	949,444
Steel ingots and castings made..... "	1,168,993	828,641	1,020,336	1,428,249
Steel rails made..... "	554,481	428,225	232,411	90,123
Canadian coke used in iron blast furnaces..... "	710,260	330,269	578,743	712,715
Imported coke used in iron blast furnaces..... "	706,888	590,902	486,022	645,488
Iron and steel imported..... "	1,890,506	878,179	771,007	864,916
Number of completed blast furnaces... No.	22	22	19	20
Number of men employed in blast furnaces..... "	1,589	1,018	1,004	.....
Wages paid in blast furnaces..... \$	1,149,345	693,632	675,453	.....
Value of pig-iron produced..... \$	16,540,012	10,002,856	11,374,199	16,780,808
Value of iron and steel goods exported..... \$	13,999,149	14,391,746	48,268,148	63,837,681
Value of iron and steel goods imported..... \$	145,226,972	80,063,679	74,308,983	129,090,168

Average Monthly Prices in Pittsburgh in 1916.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Pig-Iron:—												
Bessemer, per gr. ton.....	\$ 21.32	\$ 21.45	\$ 21.55	\$ 21.95	\$ 21.95	\$ 21.95	\$ 21.95	\$ 21.95	\$ 22.20	\$ 24.325	\$ 30.35	\$ 35.95
Basic.....	19.20	18.77	19.20	19.20	18.95	18.95	18.95	18.95	19.075	20.855	25.95	30.95
Foundry No. 2.....	19.95	19.51	19.45	19.45	19.325	19.45	19.45	19.45	19.50	21.075	26.70	31.70
Refractory.....	19.95	19.60	19.45	19.45	18.95	18.95	18.95	18.95	19.50	21.075	26.70	31.70
Gray iron Alloys:—												
Per-mang.....	19.20	18.95	18.75	18.95	18.95	18.95	18.95	18.95	19.00	20.1375	25.95	30.60
Ferro-sil (50%).....	121.00	137.00	170.00	175.00	175.00	175.00	175.00	170.00	172.50	163.00	161.40	160.00
Ferro-sil (10%).....	83.00	83.00	83.00	83.00	83.00	83.00	83.00	83.00	83.00	94.25	95.00	95.00
Semi-Finished:—												
Best. billets.....	33.75	34.00	40.60	45.00	44.25	41.20	40.00	43.60	45.00	45.75	52.00	59.00
O. H. billets.....	34.75	35.00	40.60	45.00	44.25	41.20	40.00	43.60	45.00	45.75	52.00	59.00
Best. sheet bars.....	33.75	34.00	41.00	45.00	44.25	41.20	40.00	43.60	45.00	45.75	52.00	59.00
O. H. sheet bars.....	34.75	35.00	41.00	45.00	44.25	41.20	40.00	43.60	45.00	45.75	52.00	59.00
Wire rods.....	46.25	50.00	51.00	55.00	60.00	60.00	58.75	55.00	55.00	55.00	64.00	69.00
Finished products:—												
Best. steel rails, per net ton.....	28.00	28.00	28.00	30.46	31.76	33.00	33.00	33.00	33.00	33.00	35.00	38.00
Beams, per 100 lbs.....	1.86	2.03	2.40	2.50	2.50	2.50	2.50	2.50	2.60	2.70	2.88	3.00
Plates.....	1.87	2.13	2.50	2.67	2.75	2.75	2.86	2.90	2.95	3.00	3.35	3.50
Steel Bars.....	1.86	2.01	2.34	2.50	2.50	2.50	2.50	2.50	2.60	2.60	2.78	2.90
Iron.....	2.05	2.20	2.40	2.50	2.65	2.65	2.65	2.65	2.65	2.65	2.75	2.85
Shifting dis. net tons.....	44.00	40.00	27.00	15.00	10.00	10.00	12.05	15.00	15.00	10.00	10.00	10.00
Steel pipe 1 to 3' net tons.....	76.75	68.00	73.6	71.5	70.00	70.00	70.00	70.00	69.25	69.00	68.00	68.00
Standard spikes, per 100 lbs.....	2.175	2.27	2.50	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
Wire nails.....	2.125	2.22	2.38	2.40	2.50	2.50	2.50	2.50	2.55	2.55	2.80	2.95
Plain wire.....	1.975	2.10	2.23	2.25	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Hoops.....	2.065	2.15	2.35	2.40	2.50	2.50	2.50	2.58	2.60	2.60	2.74	2.90
Straps.....	1.865	2.03	2.34	2.50	2.50	2.50	2.50	2.58	2.60	2.60	2.74	2.90
Sheet rivets.....	2.575	2.77	3.11	3.37	3.75	4.25	4.06	4.00	4.00	4.00	4.08	4.25
Sheet & Tin Plate:—												
No. 28 black sheets, per 100 lbs.....	2.58	2.60	2.75	2.90	2.925	2.92	2.90	2.75	2.8875	3.225	3.67	4.45
No. 28 Galv. sheets, 100 lbs.....	4.75	4.75	4.82	4.80	4.8875	4.79	4.79	4.25	4.225	4.45	5.07	6.25
No. 10 blue and 100 lbs.....	2.45	2.61	2.87	3.00	3.025	3.10	3.00	3.00	2.925	3.125	3.30	3.90
Tin plate, 100 lbs.....	3.75	3.75	4.15	4.69	5.125	5.55	5.81	6.00	5.625	5.75	6.05	6.50
Old Material:—												
Heavy melting, per net ton.....	17.50	17.37	17.95	18.12	17.125	16.25	16.25	16.00	16.125	17.875	20.55	26.75

From the Iron Trade Review, Cleveland, O. Jan. 4, 1917, p. 116.

IRON ORE.

Mining operations have been confined to the Helen and Magpie mines of the Algoma Steel Corporation in the Michipicoten district of Ontario, together with a small production of ilmenite at Ivry-on-the-Lake, Quebec, by the Manitou Iron Mining Company. There was also a shipment of concentrates from the concentrator at Trenton, Ont., produced in previous years from ores derived from the Bessemer and Childs mines in Hastings county.

The total shipments in 1916 were 275,176 short tons valued at \$715,107, as compared with 398,112 tons valued at \$774,427 shipped in 1915.

Of the total shipments in 1916, 134,568 tons were sent to blast furnaces in Canada and 140,608 tons to the United States. The year's shipments included 45,541 tons of hematite; 210,522 tons of roasted ore including both straight siderite and a blende of siderite and high sulphur hematite; 15,904 tons of magnetic concentrates, and 3,209 tons of ilmenite. The 1915 shipments included 205,989 tons of hematite, 132,906 tons of roasted siderite, and 59,217 tons of magnetite (including some ores with an admixture of hematite).

In Quebec the Manitou Iron Mining Company operated their ilmenite mine at Ivry-on-the-Lake, Terrebonne county, the ore being taken out under contract and shipped to Niagara Falls, N.Y.

In Ontario the Algoma Steel Corporation continued to operate the "Helen" and "Magpie" mines in the Michipicoten district. From the Helen mine there was shipped during the year 109,685 short tons of which 45,541 tons were shipped to the Sault furnaces and 64,424 tons of high sulphur ore to the Magpie roaster. This Helen high sulphur ore is mixed with Magpie raw ore and then roasted producing a very desirable Bessemer ore. The shipments from Magpie were 210,522 short tons of roasted ore, including 65,351 tons of the blended ore just mentioned. Of the total Magpie shipments 121,495 tons went to Lake Erie ports to fill contracts with United States furnace companies and the balance to the Company's furnaces at Sault Ste. Marie.

No shipments were made from the Moose Mountain mines at Sellwood, Ont., owned by Moose Mountain, Ltd., but experimental work was being carried on at the property with a view to securing a suitable agglomerating method for treating the concentrates. It was anticipated that shipments might be resumed in July of 1917.

The mines of the Canada Iron Mines, Ltd., "Bessemer" and "Childs" in Mayo township, and "Coe Hill" in Wollaston township, as well as the magnetic concentrating plant at Trenton, remained idle throughout 1916. The entire remaining stock of concentrates at Trenton (15,904 short tons) was shipped to Buffalo during the early part of the year.

Shipments of Iron Ore by Provinces, 1914-15-16.

Provinces.	1914.		1915.		1916.	
	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.
New Brunswick.....	4,775	\$ 10,841	3,683	\$ 8,261	3,209	\$ 8,308
Quebec.....	240,079	531,200	394,429	766,166	271,967	706,799
Ontario.....	244,854	542,041	398,112	774,427	275,176	715,107

Shipments of Iron Ore by Classes of Ore, 1907-1916.

IN SHORT TONS.

Year.	Hematite.	Magnetite.	Carbonate including siderite.	Bog ore.	Total.
1907.....	205,795	50,073	42,740	14,248	312,856
1908.....	173,164	49,946	4,869	10,103	238,082
1909.....	190,473	74,240	.....	3,330	268,043
1910.....	130,380	127,768	.....	1,270	259,418
1911.....	137,399	72,945	.....	.....	210,344
1912.....	86,971	128,912	.....	.....	215,883
1913.....	(a) 92,386	215,248	.....	.....	307,634
1914.....	89,454	45,562	109,838	.....	244,854
1915.....	205,989	59,217	132,906	.....	398,112
1916.....	45,541	19,113	(b) 210,522	.....	275,176

(a) Small tonnage of siderite included.

(b) Includes roasted siderite and a blende of siderite and high sulphur hematite, roasted.

Shipments of Iron Ore by Provinces, 1886-1916.

Calendar Year.	New Brunswick.	Nova Scotia.	Quebec.	Ontario.	British Columbia.	Total. Short tons.
1886.....		44,388	.....	16,032	3,941	64,361
1887.....		43,532	13,404	15,698	2,796	76,330
1888.....		42,611	10,710	16,894	8,372	78,587
1889.....		54,161	14,533	.....	15,487	84,181
1890.....		49,206	22,395	5,000	.....	76,511
1891.....		53,649	14,380	.....	950	68,979
1892.....		78,258	22,690	.....	2,300	103,248
1893.....		102,201	22,076	.....	1,325	125,602
1894.....		89,379	19,492	.....	1,120	109,991
1895.....		83,792	17,783	.....	1,222	102,797
1896.....		58,810	17,630	15,270	196	91,906
1897.....		23,400	22,436	2,770	2,099	50,705
1898.....		19,079	17,873	21,111	280	58,343
1899.....		28,000	19,420	25,126	2,071	74,617
1900.....		18,940	19,000	82,950	1,110	122,000
1901.....		18,619	15,489	272,538	7,000	313,646
1902.....		16,172	18,524	359,288	10,019	404,003
1903.....		40,335	12,035	209,634	2,290	264,294
1904.....		61,293	16,152	141,601	.....	219,046
1905.....		84,952	12,681	193,464	.....	291,097
1906.....		97,820	9,933	141,078	.....	248,831
1907.....		89,839	12,748	207,769	2,500	312,856
1908.....		11,802	10,103	216,177	.....	238,082
1909.....			4,150	263,893	.....	268,043
1910.....		18,134	4,503	231,445	.....	259,418
1911.....	31,120	22	3,616	175,586	.....	210,344
1912.....	71,520	30,857	1,185	112,321	.....	215,883
1913.....	86,416	20,436	5,102	195,580	.....	307,634
1914.....	4,775	.....	.....	240,079	.....	244,854
1915.....	3,683	.....	.....	394,429	.....	398,112
1916.....			3,209	271,967	.....	275,176

Production of Iron Ore in Nova Scotia, 1876-1885.

Calendar Year.	Short tons.	Calendar Year.	Short tons.
1876.....	15,274	1881.....	39,843
1877.....	16,879	1882.....	42,135
1878.....	36,000	1883.....	52,410
1879.....	29,889	1884.....	54,885
1880.....	51,193	1885.....	48,129

EXPORTS AND IMPORTS OF IRON ORE.

According to returns received direct from the mine operators, 140,608 tons of ore were shipped to the United States during 1916, as against 89,730 tons in 1915, and 60,414 tons in 1914, these being the total shipments outside of Canada. The Department of Customs reports the exports during these three years as 161,260 tons in 1916, 79,770 tons in 1915, and 135,451 tons in 1914. The United States Department of Commerce reports the imports of iron ore into the United States from Canada during the same three years as 153,255 short tons in 1916, 94,219 tons in 1915, and 58,816 tons in 1914.

There were charged to Canadian blast furnaces in 1916, 1,964,598 tons of imported ores as compared with 1,463,488 tons in 1915. The annual consumption of imported ores in blast furnaces, which previous to 1912 was the only record of imports, is shown in the Table "Iron Ore, Fuel and Flux charged to Blast Furnaces."

The total quantity of imported ores thus consumed since 1896 has been 19,408,894 tons. The imported ores charged in 1916 included 914,194 tons from Wabana, Newfoundland, and 1,050,404 tons of "Lake Ores."

The imports during 1916 according to the records of the Customs Department were 2,339,677 tons valued at \$4,419,013, as compared with 1,504,113 tons valued at \$2,331,755 imported in 1915. The 1916 imports included 1,364,992 tons valued at \$3,463,419 from the United States, and 974,685 tons valued at \$955,594 from Newfoundland.

The iron ore deposits at Wabana, Newfoundland, are owned and operated by the two Canadian companies operating coal mines and steel plants at Sydney and Sydney Mines, Cape Breton. The shipments from Wabana mines during 1916 were 1,012,060 short tons, all of which went to Cape Breton. The total shipments from Wabana since the mines were first operated in 1895 have amounted to 16,537,696 short tons of which 10,738,941 tons were sent to Nova Scotia, 2,078,197 tons to the United States, and 3,720,558 tons to Great Britain and Europe.

A record of the tonnage of iron ores received from the United States is presented in the table "Exports of Iron Ore from the United States to Canada" compiled from the "United States Report of Commerce and Navigation." According to this record the exports to Canada during the twelve months ending June 1916 were 1,033,930 short tons valued at \$2,790,498, as against 455,869 short tons valued at \$1,277,247 during the previous year.

Exports of Iron Ore, Calendar Years 1893-1916.

Calendar Year.	Short tons.	Value.	Average value.	Calendar Year.	Short tons.	Value.	Average value.
1893.....	2,419	\$ 7,500	\$3.14	1905*	168,289	\$407,851	\$3.42
1894.....	301	21,294	2.49	1906.....	74,778	149,177	2.01
1895.....	1,571	3,909	1.85	1907.....	25,901	45,907	1.77
1896.....	1,033	1,911	2.01	1908.....	(a)		
1897.....	403	811	2.44	1909.....	21,956	61,954	2.82
1898.....	182	278	2.30	1910.....	114,499	324,186	2.83
1899.....	4,145	9,538	2.44	1911.....	37,686	133,411	3.54
1900.....	5,527	13,511	2.40	1912.....	118,129	382,005	3.23
1901*	306,199	762,283	2.48	1913.....	126,124	426,681	3.38
1902*	428,901	1,065,019	2.51	1914.....	135,451	360,974	2.67
1903*	368,233	922,571	2.38	1915.....	79,770	206,823	2.59
1904*	168,828	401,738		1916.....	161,260	541,779	3.36

*The export figures for the five years indicated are incorrect owing to a duplication of entries.

(a) The figures of the Trade Report for this year include ferro-products, and are, therefore, omitted.

Imports* of Iron Ore into the United States from Canada, 1893-1916.

Year ending June 30.	Short tons.	Value.	Average value.	Year ending June 30.	Short tons.	Value.	Average value.
1893.....	7,706	\$ 17,186	\$2.23	1906.....	113,809	\$220,112	\$1.93
1894.....	301	756	2.51	1907.....	34,731	52,765	1.52
1895.....	2,681	10,114	3.77	1908.....	32,124	55,617	1.73
1896.....	39	142	3.64	1909.....	3,490	12,660	3.63
1897.....	2,535	5,243	2.07	1910.....	36,070	97,984	2.72
1898.....	1,313	2,904	2.21	1911.....	117,393	264,352	2.25
1899.....	2,585	5,120	1.98	Cal. year			
1900.....	4,477	5,550	1.24	1911.....	56,538	106,038	1.87
1901.....	34,453	76,159	2.21	1912.....	119,476	201,882	1.69
1902.....	309,527	685,540	2.21	1913.....	201,443	409,098	2.03
1903.....	144,725	320,263	2.21	1914.....	58,816	153,415	2.61
1904.....	126,995	283,765	2.23	1915.....	94,219	245,092	2.60
1905.....	120,241	245,623	2.04	1916.....	153,255	509,602	3.32

*Compiled from the "Foreign Commerce and Navigation of the United States."

Imports of Iron Ore, 1912-1916.

Calendar Year.	UNITED STATES.		NEWFOUNDLAND.		OTHER COUNTRIES.		TOTAL.	
	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.
1912(*9 mos.)	1,206,567	\$3,090,207	840,892	\$840,892	50	\$ 975	2,047,509	\$3,932,074
1913.....	1,072,156	3,007,653	869,669	869,669	500	502	1,942,325	3,877,824
1914.....	749,979	1,972,550	389,856	389,850	7,279	24,958	1,147,108	2,387,358
1915.....	715,060	1,568,866	789,029	762,328	24	561	1,504,113	2,331,755
1916.....	1,364,992	3,463,419	974,685	955,594			2,339,677	4,419,013

* Imports of iron ore separately stated in Customs Reports from April 1912 only.

Exports* of Iron Ore from the United States to Canada.

Year ending June 30.	Short tons.	Value.	Average value.	Year ending June 30.	Short tons.	Value.	Average value.
1896.....	1,270	\$ 4,042	\$3.18	1906.....	254,399	\$ 608,029	\$2.39
1897.....	10,942	34,168	3.12	1907.....	266,103	670,995	2.52
1898.....	12,921	34,224	2.65	1908.....	327,918	880,197	2.68
1899.....	33,598	60,497	1.80	1909.....	449,755	1,264,048	2.81
1900.....	45,237	78,542	1.74	1910.....	609,617	1,636,917	2.69
1901.....	67,994	175,689	2.58	1911.....	826,071	2,496,246	3.02
1902.....	76,457	178,107	2.45	1912.....	931,647	2,806,238	3.01
1903.....	86,258	264,755	3.07	1913.....	1,367,928	3,684,233	2.69
1904.....	92,577	252,254	2.72	1914.....	1,125,090	3,401,146	3.02
1905.....	264,214	529,454	2.00	1915.....	455,869	1,277,247	2.80
				1916.....	1,033,930	2,790,498	2.70

*Compiled from the "Foreign Commerce and Navigation of the United States."

Annual Shipments of Iron Ore from Wabana Mines, Newfoundland.

Calendar Year.	To Nova Scotia.	To United States.	To Great Britain and Europe.	Total shipments.
	Short tons.	Short tons.	Short tons.	Short tons.
1895.....	2,686			2,686
1896.....	17,410	22,798		40,208
1897.....	12,143	33,039	5,651	50,833
1898.....	34,622		78,640	113,262
1899.....	26,311	98,485	214,322	339,118
1900.....	193,507	153,867	14,776	362,150
1901.....	437,064	84,292	279,102	800,458
1902.....	376,322	96,702	341,421	814,445
1903.....	273,283	90,711	287,793	651,787
1904.....	342,710	6,025	298,694	647,429
1905.....	506,819	6,490	255,846	769,155
1906.....	628,152	141,854	213,867	983,873
1907.....	672,561	123,972	167,074	963,607
1908.....	713,772	59,532	200,033	973,337
1909.....	697,068	241,207	171,722	1,109,997
1910.....	808,762	247,336	203,528	1,259,626
1911.....	737,261	207,193	237,009	1,181,463
1912.....	956,438	191,779	183,673	1,331,910
1913.....	1,048,433	229,402	328,086	1,605,921
1914.....	417,409	43,513	172,998	633,920
1915.....	802,128		66,323	868,451
1916.....	1,012,060			1,012,060
Total.....	10,738,941	2,078,197	3,720,558	16,537,696

IRON ORE PRICES.

The prices of Canadian iron ores are naturally based on prices current in the United States. "Lake Ores," that is, those originating in what is generally known as the Lake Superior iron region, and which contributes about 80 per cent of the iron and steel requirements of the United States are quoted per gross ton delivered at Lake Erie ports. Ore prices and freights are usually fixed at the beginning of each season, and the price of any individual ore then depends on its variation from the standard in iron and phosphorus content, etc.

The urgent demand for iron ore by United States blast furnaces during the later months of 1915 resulted in general buying for 1916 delivery early in December and the fixing of prices for 1916 at 70 cents in advance of the 1914 and 1915 quotations. An increase in Lake ore shipments of 41 per cent in 1916 over 1915 almost completely exhausted stocks at the end of the year and the buying season for 1917 started on November 22, 1916, when prices were fixed for 1917 at \$1.50 in advance of 1916 quotations. This advance includes an increase in Lake freights of 50 cents per ton from the head of the lakes, or double the rates in force during 1915.

Bessemer ores are quoted on the basis of 55 per cent iron natural and 0.045 per cent phosphorus dried at 212° F. The base for Non-Bessemer ores is 51.5 per cent iron natural.

Iron ore prices per gross ton during the past four years have been as follows:—

	1914 & 1915.	1916.	1917.
Old Range Bessemer.....	\$3.75	\$4.45	\$5.95
Mesabi Bessemer.....	3.50	4.20	5.70
Old Range Non-Bessemer.....	3.00	3.70	5.20
Mesabi Non-Bessemer.....	2.85	3.55	5.05

Since 1900 the price of Old Range Bessemer ores has ranged between a minimum of \$3.00 in 1904 and a maximum of \$6.48 in 1900, non-Bessemer ores being generally from 50 to 80 cents lower. From 1883 to 1908 the price of "Old Range" ore varied during each season, which is not indicated in the accompanying table of "Selling Price of Iron Ore and Price of Pig-iron at Date of Buying Movement."

Ore prices in eastern United States are generally quoted at a rate per unit delivered eastern Pennsylvania points on tidewater. Thus in 1914 and 1915, Newfoundland, Nova Scotia, and New Brunswick ores sold in this market, would bring from 6 to 8 cents per unit, or per cent of iron. The 1916 prices ranged from 8 to 8½ cents per unit for 50% to 65% ore. Quotations in this market for Port Henry ores are in March 1917 from 10.50 to 11.75 cents per unit for ores carrying 58% to 65% iron.

The following record published by the "Iron Trade Review," of Cleveland, O., shows the annual selling price of "Lake iron ore," and the price of pig-iron at the date of buying movement.

Selling Price of Iron Ore and Price of Pig-Iron at Date of Buying Movement. (Per Gross ton).*

Season.	Date buying movement.	Season Iron Ore Prices.				Iron Prices Valley.	
		Old range Bessemer.	Mesabi Bessemer.	Old range Non-Bessemer.	Mesabi Non-Bessemer.	Bessemer.	Foundry Iron No. 2.
1890..	Dec. 15, 1889..	\$5.50	no sale	\$5.25	no sale	\$22.15	\$18.15
1891..	June 1, 1891..	4.50	"	4.25	"	15.15	15.00
1892..	Jan. 31, 1892..	4.50	"	3.65	"	15.00	13.65
1893..	Mar. 15, 1893..	3.85	\$3.00	3.20	"	12.65	12.15
1894..	Mar. 1, 1894..	2.75	2.35	2.50	"	9.65	9.65
1895..	Apl. 1, 1895..	2.90	2.19	2.25	\$1.95	9.40	9.40
1896..	May 1, 1896..	4.00	3.50	2.70	2.25	12.40	11.15
1897..	" 20, 1897..	2.60	2.25	2.15	1.90	8.35	8.40
1898..	Mar. 20, 1898..	2.75	2.25	1.85	1.75	9.55	9.80
1899..	Feb. 1, 1899..	3.00	2.40	2.15	2.00	10.30	9.75
1900..	Dec. 15, 1899..	5.50	4.50	4.25	4.00	24.15	22.15
1901..	Apl. 15, 1901..	4.25	3.25	3.00	2.75	16.15	14.40
1902..	Feb. 1, 1902..	4.25	3.25	3.25	2.75	15.90	15.90
1903..	Mar. 20, 1903..	4.50	4.00	3.60	3.20	21.50	21.65
1904..	Apl. 15, 1904..	3.25	3.00	2.75	2.50	13.35	13.15
1905..	Feb. 1, 1905..	3.75	3.50	3.20	3.00	15.50	16.00
1906..	Dec. 5, 1905..	4.25	4.00	3.70	3.50	17.25	17.25
1907..	Nov. 5, 1906..	5.00	4.75	4.20	4.00	21.50	21.50
1908..	June 15, 1908..	4.50	4.25	3.70	3.50	16.00	15.00
1909..	May 10, 1909..	4.50	4.25	3.70	3.50	14.75	14.25
1910..	Dec. 24, 1909..	5.00	4.75	4.20	4.00	19.00	17.25
1911..	Apl. 21, 1911..	4.50	4.25	3.70	3.50	15.00	13.75
1912..	Mar. 20, 1912..	3.75	3.50	3.00	2.85	14.25	13.25
1913..	Nov. 19, 1912..	4.40	4.15	3.60	3.40	17.25	17.50
1914..	May 1, 1914..	3.75	3.50	3.00	2.85	14.00	13.25
1915..	Apl. 19, 1915..	3.75	3.45	3.00	2.80	13.60	12.75
1916..	Dec. 7, 1915..	4.45	4.20	3.70	3.55	18.50	18.00
1917..	Nov. 22, 1916..	5.95	5.70	5.20	5.05	30.00	26.00

*Iron Trade Review, November 30, 1916, p. 1108.

LAKE FREIGHT RATES.

Lake freight rates on iron ore from upper lake ports to Lake Erie, during the past four years have been as follows, in cents per ton:—

	1914.	1915.	1916.	1917.
From Escanaba, Mich.....	35c.	25c.	35c.	75c.
" Marquette, Minn.....	45	35	45	90
" the head of the Lakes.....	50	40	50	100

The Marquette rate which covers shipments from Michipicoten fell from a maximum of 94 cents in 1900 to a minimum of 35 cents in 1915. The 1917 rate approaches very closely to the record.

Shipments from Key Harbour (Moose Mountain ore), have been at the Escanaba rate or 10 to 15 cents lower than Michipicoten.

The above rates are quoted net, there is an additional unloading charge of 10 cents per ton.

IRON ORE PRODUCTION IN THE UNITED STATES.

The total shipments of iron ore from the Lake Superior district during 1916, including both rail and water shipments, were 66,658,466 gross tons, as compared with 47,272,751 tons shipped in 1915, an increase of 41 per cent. The shipments in 1914 were 32,729,726 tons; in 1913, 49,947,116 tons; and in 1912, 48,221,546 tons.

The total production of iron ore in the United States from all sources was in 1916, 75,500,000 gross tons as compared with 55,493,100 gross tons in 1915; 41,439,761 gross tons in 1914, and 61,980,437 gross tons in 1913.

During the past twenty years the Lake Superior district has supplied from 80 to 85 per cent of the total United States production.

PIG-IRON.

The total production of pig-iron in 1916, not including the output of ferro-alloys which is separately tabulated, was 1,169,257 short tons (1,043,979 long tons), valued at \$16,750,898, as compared with 913,775 short tons (815,870 long tons), valued at \$11,374,199 in 1915, showing an increase of 255,482 tons, or 27.9 per cent.

The 1916 production was greater than that of any previous year, the second largest production of pig-iron having been 1,128,967 short tons in 1913.

The production in Nova Scotia in 1916 was 470,055 tons, as against 420,275 tons in 1915, an increase of 49,780 tons or 11.8 per cent; while the production in Ontario was 699,202 tons in 1916, compared with 493,500 tons in 1915, an increase of 205,702 tons, or 41.7 per cent.

Of the total output in 1916, 17,304 tons were made with charcoal as fuel, as against 13,692 tons made with charcoal in 1915.

By grades the 1916 production included: Basic 953,627 tons; Bessemer 31,388 tons; Foundry and Malleable, etc., 184,242 tons. The 1915 production included: Basic 739,613 tons; Bessemer 29,052 tons; Foundry and Malleable, etc., 145,110 tons.

The annual production of pig-iron by provinces and by grades is shown in the following tables. The values placed upon the Nova Scotia production are nominal, the greater part of the production being used in the steel plants.

There has been no production of pig-iron in the Province of Quebec during the past five years. Formerly this Province had a continuous though small production of charcoal iron which commanded a high price. The three small furnaces at Radnor Forges and Drummondville, at which this production was made, are now reported as abandoned.

Annual Production of Pig-Iron by Provinces, 1887-1916.

Year.	NOVA SCOTIA.		ONTARIO.		QUEBEC.		TOTAL.	
	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.
1887.	19,370	\$ 250,000			5,507	\$116,192	24,827	\$ 366,192
1888.	17,356	211,483			4,243	101,832	21,799	313,235
1889.	21,280	383,202			4,632	116,670	25,921	499,872
1890.	18,382	262,608			3,390	69,080	21,772	331,688
1891.	20,440	297,735			3,051	71,173	23,491	368,901
1892.	34,193	458,111			8,050	178,865	42,443	637,421
1893.	46,472	553,333			9,475	236,875	55,947	790,283
1894.	41,344	449,534			8,623	196,914	49,967	646,447
1895.	35,192	417,083			7,262	169,653	42,454	586,736
1896.	32,351	400,829	28,302	\$ 368,942	6,615	154,358	67,268	924,129
1897.	22,500	230,000	26,115	291,466	9,392	217,235	58,007	738,701
1898.	21,627	221,677	48,253	530,780	7,135	159,929	77,015	912,395
1899.	31,100	404,300	64,749	808,157	7,094	164,849	102,943	1,377,306
1900.	28,133	421,995	62,387	938,725	6,055	140,978	96,575	1,501,698
1901.	151,130	1,764,017	116,371	1,599,413	6,875	149,493	274,376	3,512,923
1902.	237,244	2,477,767	112,688	1,584,273	7,970	181,001	357,902	4,243,541
1903.	201,246	2,186,273	87,004	1,345,464	9,635	210,973	297,885	3,742,710
1904.	164,488	1,700,130	127,845	1,746,126	11,121	241,729	303,454	3,687,985
1905.	261,014	2,440,722	256,704	3,868,197	7,588	168,267	525,306	6,475,186
1906.	315,008	3,439,217	275,558	4,338,275	7,845	177,644	598,411	7,955,137
1907.	366,456	4,211,913	275,459	4,581,309	10,047	232,004	651,962	9,125,111
1908.	352,642	3,554,540	271,484	4,385,271	6,709	171,383	630,835	8,111,804
1909.	345,380	3,453,800	407,012	6,002,441	4,770	125,623	757,162	9,581,804
1910.	350,287	4,203,444	447,273	6,956,923	3,237	85,255	800,797	11,245,622
1911.	390,242	4,687,904	526,635	7,606,939	3,658	17,282	917,535	12,307,125
1912.	424,994	6,377,910	589,393	7,176,089			1,014,587	14,550,999
1913.	480,068	7,201,020	648,899	9,338,992			1,128,967	16,540,012
1914.	227,052	2,951,676	556,112	7,051,180			783,164	10,002,856
1915.	420,275	5,463,575	493,500	5,910,624			913,775	11,374,199
1916.	470,555	7,050,825	699,202	9,700,073			1,169,257	16,750,898

Annual Production of Pig-Iron by Grades. and by Fuels.

IN SHORT TONS.

Year.	BY GRADES.			BY FUELS.	
	Basic.	Bessemer.	Foundry and all other.	Charcoal.	Coke.
1909.	400,921	222,931	133,310	17,003	740,159
1910.	425,400	219,492	155,905	17,164	783,633
1911.	464,221	208,626	244,688	20,759	896,776
1912.	544,334	256,191	213,862	21,701	992,886
1913.	614,845	265,685	248,437	23,696	1,105,271
1914.	346,553	230,817	205,794	9,380	773,784
1915.	739,613	29,052	145,110	13,692	900,083
1916.	953,627	31,388	184,242	17,304	1,151,953

Monthly Prices of Foundry Pig-Iron at Montreal.*

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
January.	\$20.25	\$21.00	\$18.00	\$18.50	\$21.00	\$19.75	\$22.00	\$19.75	\$19.35	\$23.50
February.	20.50	21.00	18.00	18.50	21.00	19.00	22.00	19.75	19.35	23.50
March.	20.50	22.00	18.00	18.50	21.00	19.00	22.00	19.75	20.10	24.00
April.	21.50	20.00	18.00	19.00	21.00	18.50	22.00	19.75	19.00	25.00
May.	21.50	19.00	18.75	19.00	19.25	18.50	22.00	19.75	19.90	25.00
June.	21.50	18.75	18.75	18.50	19.25	18.50	21.50	19.50	19.90	25.00
July.	21.50	18.75	18.50	18.50	19.25	18.50	20.50	19.50	19.90	25.00
August.	21.75	18.00	18.50	18.00	19.25	19.00	20.50	19.50	19.90	25.00
September.	21.75	18.00	18.50	18.00	19.25	20.50	20.50	19.50	20.00	25.00
October.	21.50	17.75	19.00	21.00	19.25	20.50	19.75	19.40	21.00	25.00
November.	21.00	18.00	19.00	21.00	19.25	20.50	19.75	19.40	22.00	28.00
December.	20.50	18.25	19.00	21.00	19.25	21.50	19.75	19.40	22.00	28.00
Average.	21.15	19.21	18.50	19.13	19.83	19.44	21.17	19.61	20.10	24.92

*No. 1 Foundry Pig-Iron, f.o.b. cars Montreal, price per ton of 2,240 pounds on the opening market-day of each month. Quotation furnished by the Dominion Iron & Steel Co., Ltd.

Average Monthly Price of Bessemer Pig-Iron at Pittsburgh.*

PER GROSS TON (2240 POUNDS).

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
January.....	\$23.15	\$19.00	\$17.34	\$19.90	\$15.90	\$15.05	\$18.15	\$14.96	\$14.99	\$21.86
February.....	23.85	17.90	16.78	19.34	15.90	15.90	18.15	15.09	14.53	21.81
March.....	22.84	17.86	16.25	18.60	15.90	15.09	18.15	15.09	14.55	21.78
April.....	23.35	17.49	15.78	18.27	15.90	15.15	17.90	14.90	14.55	21.95
May.....	24.01	16.93	15.84	17.52	15.90	15.13	17.70	14.90	14.59	21.93
June.....	24.27	16.90	16.03	16.60	15.90	15.15	17.14	14.90	14.70	21.93
July.....	23.55	16.83	16.46	16.40	15.90	15.20	16.70	14.90	14.95	21.98
August.....	22.90	16.23	17.03	16.09	15.90	15.46	16.52	14.90	15.95	21.95
September.....	22.90	15.90	17.05	15.90	15.90	16.15	16.65	14.90	16.85	22.26
October.....	22.00	15.71	19.53	15.90	15.44	17.80	16.60	14.84	16.95	24.08
November.....	20.65	16.59	19.90	15.82	15.00	18.02	16.02	14.59	17.51	30.15
December.....	19.34	17.40	19.90	15.90	15.03	18.15	15.77	14.70	19.65	35.58

*From the Iron Age.

Average Monthly Price of Local No. 2 Foundry Pig-Iron at Chicago.*

(AT FURNACE) PER GROSS TON (2240 LBS.).

	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
January.....	\$25.85	\$18.45	\$17.35	\$19.00	\$15.50	\$14.00	\$7.90	\$13.75	\$13.00	\$18.50
February.....	25.85	18.16	16.75	19.00	15.50	14.00	17.31	14.00	13.00	18.50
March.....	26.10	17.85	16.50	18.30	15.50	14.00	17.25	14.25	12.95	18.70
April.....	26.35	17.73	16.50	17.50	15.00	14.00	17.00	14.25	13.00	19.00
May.....	26.85	17.63	16.50	17.06	15.00	14.50	16.00	14.06	13.00	19.00
June.....	26.60	17.73	16.50	16.75	15.00	14.50	15.62	13.69	13.00	19.00
July.....	25.55	17.55	17.00	16.56	14.87	14.70	14.70	13.75	13.00	19.00
August.....	24.85	17.35	17.13	16.30	14.50	13.37	15.00	13.69	13.44	18.40
September.....	24.10	17.05	18.70	16.40	14.50	16.00	15.00	13.25	13.90	18.13
October.....	22.45	16.85	19.00	16.06	14.46	17.00	15.00	12.94	11.63	19.63
November.....	20.65	17.10	19.00	16.00	14.09	17.75	14.87	12.56	17.13	25.80
December.....	18.80	17.35	19.00	16.00	14.00	18.00	14.60	13.00	18.19	29.50

*From the Iron Age, New York.

Previous to 1896, pig-iron was made entirely from Canadian ores. Since that date, however, increasing quantities of imported ore have been used as well as imported fuels and fluxes. In 1916 about 90 per cent of the ore charged, 52 per cent of the coke, and a large proportion of the limestone were imported. In 1915 about 83 per cent of the ore charged and 46 per cent of the coke and in 1914, 88 per cent of the ore and 64 per cent of the coke, were imported.

The iron industry at Sydney and North Sydney has been built up on the basis of the Newfoundland Wabana ores and the local coal supply, while in recent years a portion of the limestone required has also been obtained from Port au Port, Newfoundland. In Nova Scotia, therefore, while the fuel is all domestic, the ore is practically all imported, though from a British colony.

In Ontario large quantities of United States "Lake ores" are used. All the fuel used, with the exception of a small quantity of charcoal is imported either as coke, or as coal for charging the by-product coke ovens at Sault Ste. Marie. A portion of the limestone flux is also obtained from quarries situated in the United States. In 1916 Ontario furnaces used 1,050,404 tons of imported ores and 22,773 tons of Canadian ores, the

percentage being 82.6 per cent imported and 17.4 per cent Canadian. In 1915, 623,094 tons of imported ore, or 68 per cent of the total, and 293,305 tons, or 32 per cent of Canadian ores were charged. In 1914, 865,004 tons or 82.5 per cent of imported ore and 182,964 tons, or 17.6 per cent of Canadian ores were charged.

Iron Ore, Fuel, and Flux charged to Blast Furnaces.

Calendar Year.	IRON ORE CHARGED.		FUEL CHARGED.			Limestone.
	Canadian.	imported.	Charcoal.	*Coke from Canadian coal.	Coke imported or made from imported coal.	
	Short tons.		Bushels.	Short tons.	Short tons.	Short tons.
1887	60,434		940,400	33,581		17,171
1888	54,986		804,286	30,228		16,837
1889	65,670		755,800	36,333		22,122
1890	57,304		589,860	34,073		18,478
1891	60,933		441,812	32,796		11,377
1892	96,948		1,121,365	52,622		22,967
1893	124,053		1,302,720	65,332		27,797
1894	108,871		1,173,970	60,026		35,101
1895	93,208		789,561	51,629		31,585
1896	96,560	46,300	756,600	50,067	33,990	37,462
1897	53,658	55,722	1,031,800	35,800	27,810	31,273
1898	57,881	77,107	836,400	31,932	50,407	33,913
1899	66,384	120,650	1,928,025	44,844	64,648	51,826
1900	71,341	112,042	1,799,737	45,021	59,345	52,966
1901	156,613	361,010	1,835,736	207,835	115,367	169,399
1902	125,664	559,381	2,146,623	362,208	112,314	293,594
1903	82,035	485,911	2,322,030	350,190	96,540	277,452
1904	180,932	454,671	3,477,470	257,182	130,210	211,278
1905	116,974	861,117	4,404,394	365,897	243,882	369,715
1906	221,733	982,740	2,168,476	462,672	304,676	456,036
1907	244,104	1,117,260	1,682,085	521,068	327,082	488,462
1908	209,266	1,051,445	1,121,990	492,076	325,670	483,065
1909	231,994	1,235,000	1,779,258	412,016	507,255	526,076
1910	149,505	1,377,035	1,615,919	491,281	476,358	569,355
1911	67,434	1,628,368	1,960,459	545,933	577,388	625,216
1912	71,588	2,019,165	1,886,749	609,183	656,815	705,613
1913	139,436	2,110,828	2,206,191	710,260	706,888	630,119
1914	182,964	1,324,326	920,045	330,269	590,902	447,641
1915	293,305	1,463,488	1,314,957	578,743	486,022	573,743
1916	271,773	1,964,508	1,843,209	712,715	645,488	701,690

*Includes for the first ten years small quantity of coal.

IRON BLAST FURNACES IN CANADA IN 1916.

Of 20 furnaces 14 were in blast in 1916, for varying periods of time. The total daily capacity of the 20 furnaces is about 5,125 tons. The operating companies, with numbers and capacities of furnaces, were as follows:—

Dominion Iron & Steel Co., Sydney, C.B. Six completed furnaces of 280 tons capacity each per day; three operated throughout 1916; one for 257 days, and one for 122 days; one furnace idle throughout the year.

Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S. Two stacks and one set of stoves at Sydney Mines, C.B., of 300 tons capacity each, operated throughout 1916.

Londonderry Iron & Mining Co., Ltd., Londonderry, N.S. (in liquidation). One furnace of 100 tons capacity; idle throughout the year, not operated since 1908.

Canada Iron Foundries, Ltd., Montreal, Que. Two furnaces of 125 tons and 250 tons at Midland, Ont., both idle throughout the year, not operated since 1913.

Standard Iron Co., Ltd., Deseronto, Ont. One furnace at Deseronto with a daily capacity of 65 tons, operated throughout 1916; one furnace of 65 tons at Parry Sound, idle throughout the year, not operated since 1913.

The Steel Co. of Canada, Ltd., Hamilton, Ont. Two furnaces, one of 260 tons capacity, operated for 353 days in 1916; a second furnace of 430 tons capacity operated 296 days.

Algoma Steel Corporation, Ltd., Sault Ste. Marie, Ont. Three furnaces at Steelton, near Sault Ste. Marie, two of 280 tons capacity each, and one of 500 tons capacity operated throughout the year.

The Atikokan Iron Co. Ltd., Port Arthur, Ont. One furnace of 175 tons capacity, idle throughout the year, not operated since 1911.

The Canadian Furnace Co. Ltd., Port Colborne, Ont. One furnace of 325 tons capacity, operated 316 days in 1916.

EXPORTS AND IMPORTS OF PIG-IRON.

The total exports of pig-iron and ferro-alloys during 1916, were 46,106 tons valued at \$1,726,396 and included 23,304 tons of pig-iron valued at \$374,383, or an average of \$16.07 per ton and 22,802 tons of ferro-alloys valued at \$1,352,013, or an average of \$59.29 per ton.

The total exports during 1915 were 26,545 tons, and included 17,307 tons of pig-iron valued at \$231,551, or an average of \$13.38 per ton, and 9,238 tons of ferro-alloys valued at \$537,081, or an average of \$58.14 per ton.

The exports between 1905 and 1913 did not exceed 10,000 tons in any one year, and consisted largely, if not entirely, of ferro-alloys. During 1914, however, there was a small export of pig-iron, chiefly from Sydney to Philadelphia. The exports during the first three months of the year were 4,431 tons, which probably included about 4,000 tons of pig-iron. From the first of April the exports were separately classified and during the last nine months of the year included 9,767 tons of pig-iron valued at \$118,111, or an average of \$12.09 per ton, and 4,865 tons of ferro-alloys valued at \$285,221, or an average of \$58.63 per ton.

Considerable quantities of pig-iron are annually imported into Canada. During the calendar year 1916 the total imports of pig-iron excluding ferro-products which are separately stated were 58,130 tons valued at \$1,145,150, and included 57,256 tons valued at \$1,129,799, or an average of \$19.73 per ton, from the United States; 594 tons valued at \$10,614 or an average of \$17.87 per ton from Great Britain and 280 tons valued at \$4,737 or an average of \$16.91, from other countries.

During 1915 the total imports of pig-iron were 47,482 tons, valued at \$624,200, and included 46,894 tons, valued at \$615,268, or an average of \$13.12 per ton, from the United States, and 588 tons valued at \$8,932, or an average of \$15.19 per ton, from Great Britain.

Annual Exports of Pig-Iron and Ferro-alloys, 1896-1916.

Calendar Year.	Tons.	Value.	Average value.	Calendar Year.	Tons.	Value.	Average value.
1896.....	2,187	\$ 55,448	\$25.35	1905.....	866	\$ 22,284	\$25.73
1897.....	3,099	81,381	26.26	1906.....	305	7,429	24.36
1898.....	1,278	32,645	25.54	1907.....	439	13,504	30.76
1899.....	6,981	149,190	21.37	1908.....	290	10,614	36.60
1900.....	3,513	88,052	25.06	1909.....	5,063	186,778	36.89
1901.....	57,650	593,739	10.30	1910.....	9,763	296,310	30.35
1902.....	75,195	778,619	10.35	1911.....	5,870	271,968	46.33
1903.....	4,400	78,382	17.81	1912.....	6,976	310,702	44.54
1904.....	21,016	200,363	9.53	1913.....	6,326	351,646	55.59
				1914.....	19,063	486,366	25.51

Calendar Year.	PIG-IRON.			FERRO-ALLOYS.		
	Short tons.	Value.	Average value.	Short tons.	Value.	Average value.
1915.....	17,307	\$231,551	\$13.38	9,238	\$ 537,081	\$58.14
1916.....	23,304	374,383	16.07	22,802	1,352,013	59.29

Annual Imports of Pig-Iron showing Country of Origin.

Calendar Year	UNITED STATES.			GREAT BRITAIN.			OTHER COUNTRIES.		
	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.
1908.....	26,434	\$ 448,794	\$16.98	30,574	\$ 414,116	\$13.54	335	\$8,705	\$25.99
1909.....	50,167	735,138	14.65	87,394	1,055,799	12.08	364	7,255	19.93
1910.....	107,984	1,516,685	14.05	119,678	1,603,951	13.40	91	2,059	22.63
1911.....	122,360	1,552,896	12.69	86,125	1,058,078	12.29	2	15	7.50
1912.....	210,756	2,599,117	12.33	61,809	912,482	14.76			
1913.....	213,969	2,888,974	13.50	22,800	358,431	15.72			
1914.....	69,254	862,598	12.46	9,426	119,591	12.68			
1915.....	46,894	615,268	13.12	588	8,932	15.19			
1916.....	57,256	1,129,799	19.73	594	10,614	17.87	280	4,737	16.91

Annual Imports of Pig-Iron since 1880.

Year.	PIG-IRON.			CHARCOAL PIG-IRON.			TOTAL.	
	Short tons.	Value.	Average value.	Short tons.	Value.	Average value.	Short tons.	Value.
1880(c).....	(a) 23,159	\$ 371,956	\$16.06				23,159	\$ 371,956
1881.....	(a) 43,630	715,997	16.41				43,630	715,997
1882.....	56,594	811,221	14.33	6,837	\$211,791	\$30.98	63,431	1,023,012
1883.....	75,295	1,085,755	14.42	2,198	58,994	26.84	77,493	1,144,749
1884.....	49,291	653,708	13.26	2,893	66,602	23.02	52,184	723,010
1885.....	42,279	545,426	12.90	1,119	27,333	24.43	43,398	572,759
1886.....	42,463	528,483	12.45	3,185	60,096	18.87	45,648	588,569
1887.....	46,295	554,388	11.98	3,919	77,420	19.76	50,214	631,808
1888.....	(b) 48,973	648,012	13.23				48,973	648,012
1889.....	(b) 72,115	864,752	11.99				72,115	864,752
1890.....	(b) 87,613	1,148,078	13.10				87,613	1,148,078
1891.....	(b) 81,317	1,085,929	13.35				81,317	1,085,929
1892.....	(b) 68,918	886,485	12.86				68,918	886,487
1893.....	56,849	682,209	12.00	5,944	84,358	14.19	62,793	766,565
1894.....	42,376	483,787	11.42	2,906	34,968	12.03	45,282	518,750
1895.....	31,637	341,259	10.80	2,780	31,171	11.21	34,417	372,437
1896.....	36,131	394,591	10.92	917	11,726	12.79	37,048	406,311
1897.....	25,766	291,788	11.32	2,936	35,373	12.05	28,702	327,166
1898.....	37,186	382,103	10.28	2,250	23,533	10.46	39,436	405,634
1899.....	44,261	452,911	10.23	1,955	19,123	9.78	46,216	472,036
1900.....	49,767	811,490	16.31	1,816	38,736	21.33	51,583	850,224
1901.....	35,293	548,033	15.53	490	7,121	14.53	35,783	555,155
1902.....	39,978	585,077	14.64	38	726	19.11	40,016	585,803
1903.....	91,730	1,338,574	14.59	882	16,352	18.54	92,612	1,354,927
1904.....	62,515	894,728	14.31				62,515	894,728
1905.....	71,005	857,879	12.08				71,005	857,879
1906(c).....	96,797	1,401,047	14.47				96,797	1,401,047
1907(d).....	249,582	4,117,887	16.50	2,062	41,806	20.27	251,644	4,159,693
1908.....	57,343	871,615	15.20	1,022	18,818	18.41	58,365	890,433
1909.....	137,925	1,798,192	13.04	413	5,727	13.87	138,388	1,803,919
1910.....	227,753	3,122,695	13.71	16,106	242,152	15.03	243,859	3,364,847
1911.....	208,487	2,610,989	12.52				208,487	2,610,989
1912.....	272,565	3,511,599	12.88	115	1,370	11.91	272,680	3,512,969
1913.....	235,843	3,234,877	13.72	926	12,528	13.53	236,769	3,247,405
1914.....	78,594	981,107	12.48	86	1,082	12.58	78,680	982,189
1915.....	47,482	624,200	13.15				47,482	624,200
1916(d).....	57,337	1,128,557	19.68	793	16,593	20.92	58,130	1,145,150

(a) Comprises pig-iron of all kinds.

(b) These figures appear in Customs reports under heading "iron in pigs, iron kentledge, and cast iron."

(c) Year ending June 30 from 1880 to 1906 inclusive.

(d) Calendar year from 1907 to date.

FERRO-PRODUCTS.

Ferro-alloys including ferro-silicon, ferro-molybdenum, and ferro-phosphorus were produced in Canada in electric furnaces during 1916, the total production being 28,628 tons valued at \$1,777,615.

The total production of ferro-alloys during 1915, was 10,794 tons valued at \$753,404, as against a production of 7,524 tons valued at \$478,355 in 1914, and 8,075 tons valued at \$493,018 in 1913. In 1912 the production was 7,834 short tons valued at \$465,225, and in 1911, 7,507 short tons valued at \$376,404.

The exports of ferro-silicon and ferro-compounds during the calendar year 1916, as already stated, were 22,802 tons valued at \$1,352,012, or an average of \$59.29 per ton, as against exports in 1915 of 9,238 tons valued at \$537,081, or an average of \$58.14 per ton. During the nine months ending December 1914, the exports were 4,865 tons valued at \$285,221. Previous to April 1, 1914, the exports of ferro-alloys were included with pig-iron.

The imports of ferro-silicon, ferro-manganese, etc., during the calendar year 1916, were 14,777 tons valued at \$1,879,538, and included 7,875 tons valued at \$995,987 from Great Britain, and 6,902 tons valued at \$883,551 from the United States. The total imports included 1,572 tons of ferro-silicon valued at \$42,291, and 13,205 tons of spiegeleisen, ferro-manganese and other ferro-alloys valued at \$1,837,247.

Imports of Ferro-Alloys 1916.

	From United States.		From Great Britain.		Total Imports.	
	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.
Ferro-silicon containing not more than 15% silicon.....	31,273	\$ 41,456			31,273	\$ 41,456
Ferro-silicon containing more than 15% silicon.....	158	835			158	835
Spiegeleisen and ferro-manganese containing over 15% manganese.....	96,980	560,701	156,180	\$838,959	253,160	1,399,660
Spiegeleisen and ferro-manganese containing not more than 15% manganese and other ferro-products, n.o.p.....	9,625	280,559	1,323	157,028	10,948	437,587
	138,036	883,551	157,503	995,987	295,539	1,879,538

Imports of Ferro-Manganese, Ferro-Silicon, etc.

Fiscal Year.	Short tons.	Value.	Average value.	Fiscal Year.	Short tons.	Value.	Average value.
*1887.....	123	\$ 1,435	\$11.67	1903.....	6,350	\$ 162,710	\$ 25.62
1888.....	1,883	29,812	15.83	1904.....	2,975	75,554	25.40
1889.....	5,868	72,108	12.29	1905.....	12,935	246,815	19.08
1890.....	696	18,895	27.15	1906.....	15,023	462,739	30.80
1891.....	2,707	40,711	15.04				
1892.....	1,311	23,930	18.25	Calendar Year.			
1893.....	529	15,858	29.98	1907.....	15,437	536,285	34.74
*1894.....	284	9,885	34.81	1908.....	11,718	401,761	34.29
†1895.....	164	5,408	32.98	1909.....	17,699	411,536	23.25
1896.....	652	12,811	19.65	1910.....	18,900	464,741	24.59
1897.....	426	9,233	21.67	1911.....	17,226	429,465	24.93
1898.....	1,418	22,516	15.88	1912.....	19,810	469,884	23.72
1899.....	1,160	22,539	19.43	1913.....	30,355	990,443	30.98
1900.....	1,149	39,064	34.00	1914.....	22,147	549,485	27.81
1901.....	1,512	38,954	25.76	1915.....	13,758	807,312	58.68
1902.....	6,513	150,977	23.18	†1916.....	14,777	1,879,538	127.19

*From 1887 to 1894 inclusive, these amounts include: ferro-manganese, ferro-silicon, spiegel, steel bloom ends and crop ends of steel rails, for the manufacture of iron and steel.

†From 1895 to date, ferro-silicon, spiegeleisen, and ferro-manganese and other ferro-alloys.

CONSUMPTION OF PIG-IRON AND FERRO-ALLOYS.

The total quantity of pig-iron and ferro-alloys used in Canada arrived at by adding to the production, the excess of imports over exports amounted, in 1916, to 1,224,686 tons, as against 959,254 tons in 1915. Of the total amount consumed in 1916, 975,384 tons are reported as having been used in steel furnaces, leaving 249,302 tons of iron available for foundry and other uses. The consumption of steel furnaces included 949,444 tons of pig-iron and 25,940 tons of ferro-alloys.

The annual consumption since 1910 is shown in the following table:—

Consumption of Pig-Iron and Ferro-alloys.

Year.	Used in steel furnaces.		Available for foundry and other uses.	Total consumption.* Short tons.
	Pig-iron.	Ferro-alloys.		
1910.....	690,913	8,143	361,914	1,060,970
1911.....	700,679	21,359	422,847	1,144,885
1912.....	735,559	24,237	548,024	1,307,820
1913.....	913,722	29,408	454,710	1,397,840
1914.....	614,030	20,252	233,170	872,452
1915.....	748,114	13,941	197,199	959,254
1916.....	949,444	25,940	249,302	1,224,686

*Production of pig-iron and ferro-alloys plus excess of imports over exports.

STEEL.

Production of steel during 1916 has been reported from 24 separate plants (including 7 electric furnace plants) operated by 21 companies.

The total production of steel ingots and castings during the year was 1,428,249 short tons, as compared with 1,020,896 tons in 1915, and 824,411 tons in 1914. The increase in 1916 over the previous year was 407,353 tons or nearly 40 per cent. The highest previous production was 1,168,993 tons in 1913. The 1916 production included, according to returns furnished: open-hearth ingots 1,377,387 tons; Bessemer ingots 1,416 tons; electric steel ingots 17,939 tons; other steels 961 tons; direct castings open-hearth 23,496 tons; electric 1,700 tons; other castings 5,350 tons. The 1915 production included: open-hearth ingots 962,411 tons; Bessemer ingots 19,448 tons; electric steel and other ingots 7,970 tons; direct open-hearth castings 28,384 tons, and other direct castings 2,683 tons. The total production of electric steel in 1916 was 19,639 tons, as against 5,625 tons in 1915, and 61 tons reported for 1914.

Statistics of the production of steel ingots and castings since 1894 are given in the following table, the figures for 1894 to 1906 inclusive having been collected and published by the American Iron and Steel Association; those for the years 1907 to 1916 have been collected by this Department.

Annual Production of Steel Ingots and Castings.

(IN SHORT TONS.)

	STEEL INGOTS.				STEEL CASTINGS.			Total Ingots and castings.
	Open- hearth.	Bessemer.	Electric and other steels.	Total Ingots.	Open- hearth.	Electric and other steels.	Total castings.	
1894								28,767
1895								19,040
1896								17,920
1897								20,608
1898								24,125
1899								24,640
1900								26,406
1901								29,214
1902				197,959			5,922	203,881
1903				198,249			5,047	203,296
1904				159,352			7,286	166,638
1905				441,342			10,521	451,863
1906				622,623			16,773	639,396
1907	459,240	225,989		685,229	20,602	1,151	21,753	706,982
1908	443,442	135,557		578,999	9,051	713	9,764	588,763
1909	535,988	203,715		739,703	14,013	1,003	15,016	754,719
1910	580,932	222,668		803,600	18,085	599	18,684	822,284
1911	651,676	209,817		861,493	20,163	740	20,903	882,396
1912	692,236	231,044		923,280	31,845	2,556	34,401	957,681
1913	824,818	301,932		1,126,750	39,217	3,026	42,243	1,168,993
1914	608,383	203,184		811,567	15,315	1,759	17,074	828,641
1915	962,411	19,448	7,970	989,829	28,384	2,683	31,067	1,020,896
1916	1,377,387	1,416	18,900	1,397,703	23,496	7,050	30,546	1,428,249

Materials charged to steel furnaces.—The total quantity of pig-iron used in steel furnaces during 1916 was 949,444 tons, of which 871,212 were produced by the firms reporting, and 78,232 tons purchased. The quantity of ferro-alloys used was 25,940 tons, all purchased. The total quantity of scrap iron and steel used was 679,162 tons of which 382,427 tons originated with the firms reporting, and 296,735 tons were reported as purchased. Ores used included 1,578 tons of manganese ore and 55,059 tons of iron ore, while 224,772 tons of limestone and dolomite were used, and 13,213 tons of fluorspar. In Ontario, about 1,154 million cu. ft. of natural gas were used, while in Nova Scotia coke oven gas was used at Sydney, of which a record of quantity was not obtained.

A record of materials used in steel furnaces covering the past seven years is shown in the following table:—

Pig-Iron, Scrap Iron, and Other Materials Charged to Steel Furnaces.

(IN SHORT TONS.)

Year.	Pig-iron.	Ferro-alloys.	Scrap iron and steel.	Iron ore.	Manganese ore.	Fluorspar.	Limestone and dolomite.
1910.....	690,913	8,143	211,453	39,332	1,317	7,461	144,110
1911.....	700,769	21,359	278,797	42,892	829	8,067	130,270
1912.....	735,559	24,237	336,265	43,006	985	9,709	148,045
1913.....	913,722	29,408	406,403	55,018	1,342	10,687	197,028
1914.....	619,740	20,252	286,863	37,686	723	7,845	114,859
1915.....	748,171	13,941	413,266	74,872	908	13,520	252,045
1916.....	949,444	25,940	679,162	55,059	1,578	13,213	224,772

It will be noted that there is a large consumption of scrap iron and steel in the manufacture of steel ingots and castings. For each 100 tons of pig-iron used in 1916 the quantity of scrap charged was 71.5 tons. In 1915 the proportion was 55.2 tons of scrap to 100 tons of pig, and in 1914 it was 46.3 tons of scrap to 100 tons of pig.

The exports of scrap iron and steel in 1916 are reported as 114,300 tons valued at \$1,357,018, or an average of \$11.87 per ton, as against exports in 1915 of 89,358 tons valued at \$883,134, or an average of \$9.88 per ton.

There has been considerable variation in the export of scrap but during the past three years the exports have greatly increased as shown in the accompanying table.

The total imports of scrap iron and steel in 1916 is recorded by the Customs Department as 11,574 tons valued at \$179,751, or an average of \$15.53 per ton, as against imports in 1915 of 11,477 tons valued at \$127,614, or an average of \$11.12 per ton.

The imports of scrap during the past three years have been comparatively small, compared with the annual imports during the previous twenty years.

Annual Exports of Scrap Iron and Steel.

Calendar Year.	Short tons.	Value.	Value per ton.	Calendar Year.	Short tons.	Value.	Value per ton.
1900.....	12,548	\$257,868	\$20.55	1908.....	4,628	\$ 73,807	\$15.95
1901.....	9,718	168,438	17.33	1909.....	20,525	305,256	14.87
1902.....	6,691	135,463	20.25	1910.....	11,663	171,603	14.71
1903.....	6,563	88,835	13.54	1911.....	4,208	54,618	12.99
1904.....	7,859	76,125	9.69	1912.....	16,632	145,250	8.73
1905.....	24,109	240,105	9.96	1913.....	45,556	483,813	10.62
1906.....	12,947	235,913	18.22	1914.....	35,405	446,337	12.60
1907.....	11,461	185,430	16.18	1915.....	89,358	883,134	9.88
				1916.....	114,300	1,357,018	11.87

Annual Imports of Scrap Iron and Steel.

Fiscal Year.	Cast Scrap Iron.			Iron or steel, scrap, wrought, being waste or refuse, including punchings, cuttings, and clippings of iron or steel plates or sheets, having been in actual use, crop ends of tin plate, bars, blooms and rails the same not having been in actual use.			Scrap iron and scrap steel, old and fit only to be remanufactured, being part of or recovered from any vessel wrecked in waters subject to the jurisdiction of Canada.			Total.
	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	
1893.....	770	\$ 9,317	\$12.78	45,459	\$574,809	\$12.64	46,188	.....	.....	\$ 584,126
1894.....	778	9,771	12.55	30,850	369,682	11.98	30,928	.....	.....	370,453
1895.....	643	4,347	6.76	23,390	244,388	10.45	24,033	.....	.....	248,735
1896.....	93	741	7.97	13,607	157,996	11.61	13,700	.....	.....	158,697
1897.....	238	1,362	5.72	7,903	53,541	11.84	8,141	.....	.....	94,903
1898.....	1,559	13,251	8.50	48,769	533,628	10.94	50,462	.....	.....	547,828
1899.....	2,378	22,594	9.50	28,297	298,219	10.54	30,730	.....	.....	323,862
1900.....	13,747	150,681	10.96	38,586	635,008	16.46	52,500	.....	.....	789,186
1901.....	4,499	51,032	11.34	17,922	239,582	13.37	22,764	.....	.....	293,221
1902.....	3,048	38,958	12.78	36,046	519,398	14.41	39,198	.....	.....	559,867
1903.....	7,137	94,028	13.17	43,078	668,971	15.53	50,252	.....	.....	764,430
1904.....	11,785	149,923	13.17	20,969	298,196	14.22	32,412	.....	.....	448,729
1905.....	6,533	75,521	11.56	15,443	210,561	13.63	22,012	.....	.....	286,421
1906.....	4,866	60,086	12.52	21,098	325,269	15.42	26,089	.....	.....	386,575
1907.....	13,852	198,686	14.34	25,898	512,666	19.42	39,950	.....	.....	611,749
1908.....	16,300	202,843	12.44	32,025	540,878	16.89	48,123	.....	.....	661,117
1909.....	12,621	153,578	12.17	15,136	191,782	12.70	26,213	.....	.....	343,717
1910.....	20,572	266,626	12.99	30,894	408,075	13.21	51,478	.....	.....	675,431
1911.....	34,831	406,154	11.66	43,544	547,942	12.58	78,378	.....	.....	954,254
Calendar Year	49,874	659,319	13.22	54,869	828,860	15.10	104,747	.....	.....	1,488,255
1913.....	10,162	118,299	11.64	21,446	218,553	12.53	31,406	.....	.....	337,406
1914.....	5,136	53,778	10.47	5,912	71,859	12.15	11,477	.....	.....	127,614
1915.....	1,225	19,134	15.62	10,401	160,267	15.56	11,574	.....	.....	179,751

49 months.

*Ingot - interesting 7, 15 tons
 Blooms means of growing iron from 1.00g tons
 Billets means of metal (rolled)*

Rolling Mill Production.—Statistics of the production of rolled iron and steel products have been received from all firms operating rolling mills in Canada. The principal rolled products are, in addition to blooms and billets, steel rails, wire rods, bars and rods, and a small tonnage of plates. There is practically no production of structural steel. Other products manufactured at these plants include forgings, angle splice bars, rail fastenings, nails and spikes, wire and wire fencing, and many other classes of finished products of which a detailed record is not obtained.

The quantity of steel used by rolling mills in 1916 included 1,360,797 tons of ingots produced by firms reporting, 83,090 tons of ingots, blooms and billets purchased, and 130,734 tons of scrap iron and steel. In 1915 the quantities of steel used included 1,033,682 tons of ingots produced by firms reporting, 21,975 tons of ingots, blooms and billets purchased, and 57,051 tons of scrap iron and steel. The production in 1916 included: steel rails, 90,123 tons; wire rods 179,226 tons; bars and plates 619,500 tons; forged products, etc., 152,668 tons. The production in 1915 included: steel rails, 232,411 tons; wire rods 124,381 tons; bars and plates 294,595 tons; forged products, etc., 34,358 tons. In addition to the above there was also a small production of billets for export.

The annual production of rolling mills in so far as returns have been furnished to this Department, are as follows:—

Annual Production of Rolling Mills.

(IN SHORT TONS.)

Year.	Steel rails.	Wire rods.	Bars and plates.	Other products*.
1908.....	300,935	41,420	.....	.....
1909.....	377,642	81,762	.....	.....
1910.....	399,762	88,456	128,940	28,354
1911.....	399,760	85,811	202,023	62,676
1912.....	471,422	68,174	267,797	36,441
1913.....	554,481	57,389	269,096	51,654
1914.....	428,226	63,856	143,754	42,070
1915.....	232,411	124,381	294,595	34,358
1916.....	90,123	179,226	619,500	152,668

*Includes forged products, angle splice bars, and rail fastenings.

The record of production of finished rolled iron and steel in Canada, collected and published by the American Iron and Steel Institute and the American Iron and Steel Association, which covers a longer period of time and is possibly more complete than that given above, is shown in the following tables quoted from the annual Statistical Report of the American Iron and Steel Institute for 1915 and special Statistical Bulletin No. 4, 1917.

Finished Rolled Iron and Steel.

PRODUCTION OF FINISHED ROLLED PRODUCTS, 1895-1910.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1901.....	112,007	1905.....	571,742
1896.....	75,043	1902.....	161,485	1907.....	600,179
1897.....	77,021	1903.....	129,516	1908.....	496,517
1898.....	90,303	1904.....	180,038	1909.....	662,741
1899.....	110,642	1905.....	385,826	1910.....	739,811
1900.....	100,690				

PRODUCTION OF FINISHED ROLLED FORMS BY LEADING PRODUCTS.

Products.	1911.	1912.	1913.	1914.	1915.	1916.
Rails.....	360,547	423,885	506,709	382,344	209,752	81,497
Structural shapes and wire rods.....	76,617	64,082	68,048	59,050	114,829	174,490
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc.....	344,760	73,257	392,340	218,125	328,737	707,823
Total. Gross tons.....	781,924	861,224	967,097	659,519	653,318	963,810

PRODUCTION OF FINISHED ROLLED FORMS, SHOWING IRON AND STEEL SEPARATELY, GROSS TONS, 1904-1916.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total
1904.....	53,188	126,850	180,038	1911.....	86,383	695,541	781,924
1905.....	67,421	318,405	385,826	1912.....	109,012	752,212	861,224
1906.....	78,898	492,844	571,742	1913.....	95,881	871,216	967,097
1907.....	81,093	519,086	600,179	1914.....	47,309	612,210	659,519
1908.....	65,505	431,012	496,517	1915.....	40,797	612,521	653,318
1909.....	79,636	583,105	662,741	1916.....	76,478	887,332	963,810
1910.....	83,918	655,893	739,811				

PRODUCTION OF STEEL RAILS, 1895-1916.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	600	1901.....	891	1907.....	311,461	1913.....	506,709
1896.....	600	1902.....	33,950	1908.....	268,692	1914.....	382,344
1897.....	500	1903.....	1,243	1909.....	344,830	1915.....	209,752
1898.....	600	1904.....	36,216	1910.....	366,465	1916.....	81,497
1899.....	*835	1905.....	178,885	1911.....	360,547		
1900.....	700	1906.....	312,877	1912.....	423,885		

* Includes a few tons of iron rails.

Steel Billets.—A record of monthly prices of mild steel billets at Montreal as quoted by The Dominion Iron & Steel Company, is shown in an accompanying table.¹

During 1916 prices steadily increased during the year, quotations in January and February being from \$38.50 to \$40.50 per gross ton and in December from \$52 to \$55 per gross ton.

In Pittsburgh, open-hearth billets averaged \$32 per gross ton in January increasing to \$45 in April and May. There was a slight decrease during the next three months followed by further increases to a maximum monthly average of \$57.50 in December.

¹Compiled from the annual records of wholesale prices published by the Department of Labour.

Monthly Prices of Mild Steel Billets at Montreal.*

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
January.....	\$28 75	\$30 00	\$26 00	\$26 50	\$27 00	\$24 75	\$26 50	\$24 50	\$24 75	\$39 50
February.....	34 00	30 75	26 00	26 50	27 00	23 75	30 00	24 50	24 75	39 50
March.....	34 50	31 00	26 25	26 50	27 00	23 75	30 00	24 50	26 50	45 50
April.....	34 75	30 75	26 25	26 50	27 00	23 75	30 00	25 25	26 50	44 50
May.....	35 25	31 75	26 25	26 50	26 75	23 75	31 00	25 25	26 50	44 50
June.....	34 50	33 75	26 50	26 00	25 75	23 75	31 00	25 25	26 50	44 50
July.....	34 00	26 75	26 50	26 00	25 75	23 75	29 00	25 25	26 50	44 50
August.....	34 50	27 00	26 50	25 75	25 00	24 25	29 00	25 25	29 50	44 50
September.....	34 00	27 00	26 25	25 50	25 00	24 75	28 00	25 25	31 00	44 50
October.....	33 75	27 25	26 25	25 50	23 75	25 25	26 50	25 25	31 00	46 00
November.....	34 25	27 00	26 25	24 75	23 75	25 25	25 50	24 75	32 00	52 00
December.....	35 00	26 75	26 50	25 00	24 75	26 00	25 50	24 75	34 00	53 50
Average.....	33 94	29 15	26 29	25 91	25 71	24 40	28 50	25 23	28 29	45 08

*Average price per ton of 2,240 pounds, f.o.b. Montreal in the first week of each month, quotations supplied by the Dominion Iron & Steel Co., Ltd.

Average Monthly Prices of Bessemer Steel Billets at Pittsburgh.*

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
January.....	\$29 40	\$28 00	\$25 00	\$27 50	\$23 00	\$20 00	\$28 30	\$20 13	\$19 25	\$32 00
February.....	29 50	28 00	25 00	27 50	23 00	20 00	28 50	21 00	19 50	33 50
March.....	29 00	28 00	23 00	27 50	23 00	19 75	28 50	21 00	19 70	42 40
April.....	30 12	28 00	23 00	26 75	23 00	20 00	28 50	20 80	20 00	45 00
May.....	30 30	28 00	23 00	26 12	22 60	20 80	27 37	20 00	20 00	45 00
June.....	29 62	25 75	23 00	25 30	21 00	20 87	26 50	19 50	20 50	43 50
July.....	30 00	25 00	23 50	25 00	21 00	21 50	26 60	19 00	21 38	41 00
August.....	29 25	25 00	24 13	24 62	21 00	22 12	26 00	20 25	23 13	44 20
September.....	29 37	25 00	25 00	24 40	20 75	23 62	24 87	21 00	24 10	45 00
October.....	28 20	25 00	26 25	23 75	20 00	26 00	23 30	20 00	24 63	46 25
November.....	28 00	25 00	27 13	23 30	19 50	27 00	21 00	19 25	26 50	52 00
December.....	28 00	25 00	27 50	23 00	19 25	27 00	20 00	19 00	30 60	57 50

*As compiled and published by "The Iron Age," New York.

Exports and Imports.—The Dominion Iron & Steel Company, has, during the past three years, been making some export of steel billets for European demand, but as yet the Department of Customs has not published any separate record thereof.

There has been a considerable annual importation, as shown in the accompanying tables, of iron and steel billets, and of iron and steel ingots, blooms, slabs, puddled bars, etc. Unfortunately the record for 1916, and possibly also that for 1915, is not complete, large quantities having been imported as "Munitions" and not separately classified.

The export records¹ of the United States, for the year 1916 at least, give a more complete record. According to this authority there was exported from the United States to Canada during the calendar year 1916, billets, ingots and blooms of steel 105,420 gross tons (118,070 short tons) valued at \$6,662,860 or an average of \$56.43 per short ton, as against corresponding exports in 1915 of 58,486 gross tons (65,504 short tons) valued at \$1,528,155 or an average of \$23.33 per short ton, and exports in

¹ Monthly Summary of Foreign Commerce of the United States, Department of Commerce, Washington, D.C.

1914 of 14,325 gross tons (16,044 short tons) valued at \$311,267, or an average of \$19.40 per short ton.

The second following table shows for a number of years the exports of billets, ingots and blooms of steel from the United States to Canada. The principal differences between this and the Canadian record appear to be for the year 1916.

Imports of Iron and Steel Ingots, Blooms, Billets, etc.

Fiscal Year.	Iron and steel billets weighing not less than 60 pounds per lineal yard.			Iron or steel ingots, coarsed ingots, blooms, slabs, puddled bars and loose, or other forms, n.o.p., less finished than iron or steel bars, but more advanced than pig-iron, except castings.			Steel billets, n.o.p.			Total.	
	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.
1908.....	14,866	\$ 416,163	\$27.99	4,722	\$135,177	\$28.63	1,634	\$ 48,672	\$29.79	21,222	\$ 600,012
1909.....	3,940	95,350	24.20	3,715	53,135	14.30	1,232	31,869	25.86	4,887	186,354
1910.....	28,358	518,102	18.27	5,775	97,333	16.85	2,662	63,089	23.52	34,813	678,524
1911.....	44,457	861,036	19.37	3,228	68,616	21.26	711	19,440	27.35	48,396	947,592
1912.....	85,852	1,593,665	18.56	2,608	52,063	19.97	729	17,247	23.65	89,189	1,662,979
Calendar Year											
1913.....	51,765	1,178,151	22.76	665	19,370	29.61	453	14,784	32.67	52,873	1,212,314
1914.....	12,247	241,734	19.70	635	5,318	8.36	647	15,131	23.37	13,049	259,783
1915.....	32,210	715,493	22.21	10,080	316,814	28.85	10,928	238,360	21.81	54,118	1,270,667
1916*.....	12,627	495,625	39.25	7,940	385,816	47.79	803	14,005	46.24	50,876	895,446

*Import record not complete. See explanation in text.

Exports of Various Iron and Steel Products from the United States to Canada.

Calendar Year.	Billets, Ingots and Blooms of Steel.			Steel Rails for Railways.			Sheets and Plates.			Structural Iron and Steel.		
	Short tons.	Value.		Short tons.	Value.		Short tons.	Value.		Short tons.	Value.	
		Value.	Value per ton.		Value.	Value per ton.		Value.	Value per ton.		Value.	Value per ton.
1910.....	23,160	\$ 461,204	\$19.91	28,392	\$ 750,424	\$26.44	.....	.....	.....	83,830	3,346,393	\$39.91
1911.....	64,020	1,262,732	19.72	68,613	2,490,110	25.34	.....	.....	.....	115,420	6,111,958	35.64
1912.....	92,566	1,941,418	20.98	149,353	3,790,685	25.44	.....	.....	.....	190,346	6,555,372	35.85
1913.....	18,568	384,373	20.76	181,408	4,791,559	26.41	.....	.....	.....	322,766	10,463,154	32.42
1914.....	18,044	311,267	16.40	25,949	685,468	26.42	.....	.....	.....	125,457	3,454,372	27.53
1915.....	65,504	1,528,155	23.33	8,521	230,637	27.07				110,725	3,083,362	27.67
1916.....	118,070	6,662,860	56.43	46,011	1,586,639	34.48				125,169	5,788,908	46.23

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Calendar Year.	Tin Plate, Terne Plates and Taggers Tin.			Wire and Manufactures of Wire.			Pipe and Fittings.			Metal Working Machinery.		
	Short tons.	Value.		Short tons.	Value.		Short tons.	Value.		Short tons.	Value.	
		Value.	Value per ton.		Value.	Value per ton.		Value.	Value per ton.		Value.	Value per ton.
1910.....	12,473	\$ 881,719	\$70.69	47,074	\$2,077,092	\$44.12	30,008	\$1,371,390	\$45.70	8	\$ 466,216	\$58.26
1911.....	32,405	2,313,492	69.90	62,895	2,670,765	42.46	40,485	1,853,764	45.79	115,420	1,083,718	9.35
1912.....	57,746	3,663,770	63.46	64,354	2,496,781	38.80	86,103	4,288,887	49.81	190,346	1,845,241	9.70
1913.....	57,524	3,842,159	66.79	53,749	2,143,449	39.88	79,929	4,093,690	51.22	322,766	1,848,463	5.73
1914.....	39,770	2,614,859	65.75	53,254	2,083,150	39.11	15,374	954,817	62.10	125,457	767,064	6.11
1915.....	43,854	2,762,405	62.99	51,963	2,159,436	41.56	21,859	1,697,511	77.66	110,725	4,336,065	39.12
1916.....	57,683	4,094,005	81.45	66,690	4,289,572	64.32	.....	.....	.....	125,169	7,929,909	63.34

Steel Rails. -The production of steel rails in Canada in 1916, was 90,170 short tons as against 232,411 tons in 1915 and was the smallest output since 1901. The annual production from 1905 to 1915 varied between 200,000 tons and 500,000 tons per annum.

There is no record of exports of steel rails although in recent years such exports have been made to South Africa and to the United States.

The imports of steel rails during 1916 is recorded by the Customs Department as 11,227 short tons valued at \$344,802. This record, however, is possibly not complete since the United States Department of Commerce reports the exports of steel rails from the United States to Canada during the same period as 46,011 tons valued at \$1,586,639.

The annual imports of steel rails as shown in the following table from 1895 to 1905 ranged between 50,000 and 212,000 tons, averaging about 125,000 tons. From 1906 to date, however, or since the establishment of rail mills at Sydney and Sault Ste. Marie, the imports have fallen to an annual average of 60,000 tons, the variation being between a minimum of 10,420 tons in 1915 and a maximum of 177,041 tons in 1913.

Annual Imports of Steel Rails, etc.

Fiscal Year.	Steel rails weighing not less than 45 pounds per lineal yard for use in railway tracks.			Steel Rails(a).			Railway Fish Plates.			Railway Tie-plates.			Switches, frogs, crossings and intersections for railways.		
	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.
1895.....	48,629 ^b	\$ 838,144	\$17.24	4,660	\$ 94,858	\$20.36	2,174(b)	\$ 50,412	\$23.19				37	\$ 3,230	\$ 87.29
1896.....	52,176	1,034,578	19.83	6,692	125,338	18.73	2,233	50,535	22.63				94	4,237	45.07
1897.....	91,194	1,443,857	15.83	4,095	82,354	20.11	3,226	67,511	20.93				60	3,770	62.83
1898.....	105,178	1,810,605	17.21	7,290	89,912	12.33	7,828	171,605	21.92				358	3,303	9.23
1899.....	103,833	1,714,228	16.51	4,823	86,614	17.96	5,821	131,498	22.59				103	3,065	29.75
1900.....	130,617	2,793,903	21.39	5,384	132,689	24.65	8,478	226,280	26.69				630	41,833	66.40
1901.....	125,739	3,329,919	26.48	4,947	142,590	28.82	4,618	165,960	35.94				154	17,301	112.34
1902.....	122,368	2,746,222	22.44	8,285	206,908	24.97	4,094	122,840	30.00				352	20,221	57.45
1903.....	183,603	4,256,064	23.13	12,301	235,904	19.18	7,047	210,081	29.81				475	34,198	72.00
1904.....	189,884	4,329,363	22.80	10,600	263,284	24.84	7,000	208,246	29.75				468	24,616	52.60
1905.....	212,491	5,051,762	23.77	17,904	421,064	23.52	5,396	176,002	32.62				624	41,833	67.04
1906.....				49,878	1,214,548	24.35	4,387	172,267	39.27				687	55,120	80.23
1907 ^c				72,811	1,867,865	25.65	4,960(b)	215,045	43.36				517	46,530	90.04
1908.....				49,487	1,205,054	24.36	1,225	55,193	45.06		\$40,046	\$16.62	1,475	143,581	100.20
1909.....				50,504	1,275,479	25.25	1,524	85,178	56.55		47,375	38.30	1,870	174,527	93.36
1910.....				50,104	1,308,373	27.91	2,524	109,113	43.26		47,375	33.79	1,950	134,734	117.76
1911.....				32,783	805,984	27.33	1,889	69,748	40.82		35,399	36.99	1,460	144,195	98.76
1912.....				91,132	2,429,318	26.66	3,045	130,436	42.83		16,164	36.65	2,350	278,906	118.84
Calendar Year				177,041	4,886,117	27.59	3,366	146,493	43.52		88,220	43.80		324,694	
1913.....				38,496	979,723	25.45	2,900	113,913	39.28		23,137	34.64		148,848	
1914.....				10,420	297,598	28.56	1,790	69,677	38.92		11,943	44.07		39,417	
1915.....				11,227	344,802	30.71	1,107	97,819	46.43		27,402	40.96		109,650	
1916**.....															

^a9 mos. of railways, street railways and tramways, even although they are used for private purposes only, and even although they are not used or intended to be used in connection with the business of common carrying of goods or passengers. (b) Fish plates and tie-plates from 1895 to 1907 inclusive.

^cSee text explanations and compare with preceding table.

Wire Rods.—The production of wire rods in Canadian rolling mills has shown a further increase in 1916 amounting to 179,226 tons, as against 124,381 tons in 1915, and 63,856 tons in 1914. From 1908 to 1914 inclusive, the average annual production was about 70,000 tons. The imports of wire rods in the coil in 1916 were 66,166 tons valued at \$3,069,162, or \$46.39 per ton, as compared with imports in 1915 of 71,839 tons valued at \$1,695,842, or \$23.60 per ton, and imports in 1914 of 65,250 tons valued at \$1,472,597, or \$22.57 per ton. The annual imports have varied between rather wide limits as shown by the following table, the highest figure having been reached during the fiscal year of 1913, with a total of 91,919 tons.

The average monthly price of wire rods in Pittsburgh in 1916 advanced from \$43 per gross ton in January to \$60 during April and May, receding slightly during the next five months, but increasing to an average of \$68.75 per ton in December.

Annual Imports of Wire Rods.¹

Fiscal Year.	Short tons.	Value.	Value per ton.	Fiscal Year.	Short tons.	Value.	Value per ton.
1898.....	33,589	\$ 658,153	\$19.59	1908.....	9,862	\$ 295,122	\$29.93
1899.....	34,800	765,777	22.01	1909.....	20,312	538,378	26.51
1900.....	41,994	1,196,593	28.49	1910.....	28,071	749,117	26.69
1901.....	20,505	645,136	31.46	1911.....	36,032	965,912	26.81
1902.....	55,182	1,522,792	27.60	1912.....	43,397	1,033,397	23.81
1903.....	50,624	1,415,447	27.96	1913.....	91,919	2,144,405	23.33
1904.....	42,313	1,134,149	26.80	Calendar Year			
1905.....	31,730	792,078	24.96	1913.....	79,608	1,962,235	24.65
1906.....	18,811	478,991	25.46	1914.....	65,250	1,472,597	22.57
1907.....	11,050	306,039	27.70	1915.....	71,839	1,695,842	23.60
				1916.....	66,166	3,069,162	46.39

¹Rolled iron wire rods in the coil of iron or steel not over $\frac{1}{2}$ inch in diameter when imported by wire manufacturers for use in making wire in the coil in their own factories.

Rolled round rods in the coil of iron or steel for the manufacture of chains.

Average Monthly Prices of Bessemer Wire Rods at Pittsburgh.*

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
January...	\$37.00	\$34.30	\$33.00	\$33.00	28.00	\$24.37½	\$30.00	\$25.50	\$25.00	\$43.00
February...	37.00	35.00	33.00	33.00	28.75	25.00	30.00	26.38	25.00	48.00
March.....	37.00	35.00	33.00	33.00	29.00	25.00	30.00	26.50	25.00	54.80
April.....	37.00	35.00	29.00	32.50	29.00	25.00	30.00	26.00	25.00	60.00
May.....	37.00	35.00	27.50	32.00	29.00	25.00	30.00	25.50	25.00	60.00
June.....	37.12½	33.50	27.50	30.80	28.25	25.00	29.50	24.50	25.00	53.75
July.....	36.50	33.00	29.40	29.20	27.00	25.00	28.30	24.50	25.63	53.75
August.....	36.10	33.25	31.00	28.25	27.00	25.80	28.00	25.00	27.00	55.00
September...	36.00	33.00	31.50	28.00	27.00	27.00	27.37½	26.20	29.40	55.00
October.....	35.40	33.00	31.87½	28.50	26.00	28.50	26.60	25.88	31.75	55.00
November...	34.00	33.00	32.50	28.12½	25.30	29.75	25.87½	25.25	36.25	63.00
December...	34.00	33.00	33.00	28.00	24.50	30.00	25.17	25.00	39.50	68.75

* As compiled and published by "The Iron Age," New York.

Tin Plate.—There is no production of tin plate in Canada. The imports during 1916 were 57,543 tons, valued at \$5,221,163, as compared with imports in 1915 of 45,165 tons valued at \$2,883,951. The imports during the past ten years have averaged about 42,500 tons per annum.

Annual Imports of Tin Plate.

Year.	Tons.	Value.	Year.	Tons.	Value
Fiscal Year.			Fiscal Year.		
1891.....	10,734	\$ 854,770	1905.....	30,000	\$1,751,507
1892.....	19,296	1,235,961	1906.....	30,259	1,869,000
1893.....	15,131	892,106	1907.....	22,628	1,516,777
1894.....	15,369	956,813	1908.....	34,876	2,437,540
1895.....	13,022	681,739	1909.....	26,859	1,682,366
1896.....	16,910	923,279	Calendar Year.		
1897.....	18,768	919,506	1909.....	36,904	2,216,089
1898.....	22,864	1,150,741	1910.....	39,101	2,475,010
1899.....	16,575	927,036	1911.....	47,006	3,172,943
1900.....	25,108	1,683,788	1912.....	60,502	3,826,735
1901.....	27,165	1,466,965	1913.....	58,031	3,954,615
1902.....	27,207	1,528,655	1914.....	50,791	3,151,385
1903.....	30,251	1,806,643	1915.....	45,165	2,883,951
1904.....	24,820	1,461,811	1916.....	57,543	5,221,163

EXPORTS AND IMPORTS OF IRON AND STEEL GOODS.

Canada imports large quantities of iron and steel, much larger quantities than are manufactured in domestic steel mills. Reference has already been made to exports and imports of a few specific products; the following, however, is a general summary of the available records relating to exports and imports of iron and steel as compiled from the reports of the Customs Department. Mention has already been made of the fact that some of these records such as imports of billets, etc., are incomplete because there have been large imports for the manufacture of munitions that have not been entered under the usual classifications but have been included in one general item with many other products. This fact should be kept in mind in analysing the statistics, since it may explain a number of apparent discrepancies between these records and those available from other sources, such as, for instance, as the United States Department of Commerce records of International Trade.

The exports of iron and steel from Canada have consisted chiefly of manufactured goods, such as agricultural implements, automobiles, bicycles, machinery, etc. During the past two years, however, there have been considerable exports of steel rails, billets, rods and wire products.

The total recorded value of iron and steel exported during the calendar year 1916 was \$63,837,681, as compared with a value of exports in 1915 of \$48,268,148, and in 1914 of \$14,391,746.

The exports during 1916 included: pig-iron and ferro-alloys 46,106 tons valued at \$1,726,396; scrap iron and steel 114,300 tons valued at \$1,357,018; wire and wire nails 122,526 tons valued at \$8,597,320; agricultural implements valued at \$3,705,927; automobiles and bicycles, \$6,807,499; other manufactures of iron and steel, \$41,643,521.

The exports during 1915 included: pig-iron and ferro-alloys, 26,545 tons valued at \$768,632; scrap iron and steel 89,358 tons, valued at \$883,134; wire and wire nails 71,998 tons, valued at \$3,224,740; agricultural

implements, valued at \$3,417,060; automobiles and bicycles, \$7,139,712; other manufactures of iron and steel, \$32,834,870.

The exports during 1914 included: pig-iron and ferro-alloys 19,063 tons, valued at \$486,366; scrap iron and steel 35,405 tons, valued at \$446,337; wire and wire nails 9,663 tons, valued at \$355,781; agricultural implements, valued at \$5,788,899; automobiles and bicycles, \$3,409,749; other manufactures of iron and steel, \$3,904,614.

The exports during 1913 in similar groupings were: pig-iron and ferro-alloys 6,326 tons, valued at \$351,646; scrap iron and steel 45,556 tons, valued at \$483,813; agricultural implements valued at \$7,411,246; automobiles and bicycles, \$3,630,964; other manufactures of iron and steel, \$2,121,480.

A detailed record of these exports during the past four years is shown in the accompanying tables:—

Exports of Iron and Steel Goods, the Products of Canada, during the Calendar Years 1915 and 1916.

		1915.			1916.		
		Quantity.	Value.	Average value.	Quantity.	Value.	Average value.
Stoves.....	No.	1,271	\$ 18,563	\$14.61	.....	\$ 29,956	.....
Gas buoys and parts of.....	\$	.....	2,017	.....	.....	2,484	.....
Castings, n.e.s.....	.....	.....	143,714	.....	.....	167,881	.....
Pig-iron.....	Tons	17,307	231,551	13.38	23,304	374,383	\$16.07
Ferro-silicon and ferro-compounds "	"	9,238	537,081	58.14	22,802	1,352,013	59.29
Wire and wire-nails.....	"	71,998	3,224,740	44.79	122,526	8,597,320	70.17
Machinery (linotype "ines).....	\$	.....	6,946	.....	.....	35,465	.....
Machinery n.e.s.....	"	.....	536,162	.....	.....	1,206,863	.....
Sewing machines.....	No.	2,557	30,379	11.92	.....	82,032	.....
Washing machines, etc.....	\$	.....	20,334	.....	.....	5,763	.....
Typewriters.....	No.	3,175	206,811	65.14	3,597	216,761	68.60
Scrap iron and steel.....	Tons	89,358	883,134	9.88	114,300	1,357,018	11.87
Hardware, tools, etc.....	\$	.....	321,021	.....	.....	376,549	.....
Hardware, n.e.s.....	"	.....	401,053	.....	.....	515,613	.....
All other iron and steel.....	"	.....	31,147,770	.....	.....	38,974,154	.....
Agricultural implements—							
Mowing machines.....	No.	5,031	175,912	34.97	6,672	233,024	34.93
Reapers.....	"	471	21,105	44.80	1,115	65,011	58.31
Drills.....	"	6,100	422,772	66.06	4,713	317,831	67.44
Harvesters and binders.....	"	7,668	809,141	105.52	7,495	814,517	108.67
Ploughs.....	"	14,923	309,286	20.73	17,700	483,650	27.32
Harrows.....	"	4,459	81,731	18.33	6,691	97,214	14.53
Hay rakes.....	"	1,758	40,289	22.92	2,011	43,746	21.75
Seeders.....	"	2	87	43.50	2	128	64.00
Threshing machines.....	"	1,001	568,401	567.83	1,522	465,209	305.66
Cultivators.....	"	5,957	166,602	27.97	4,219	142,028	33.66
All other.....	\$	.....	302,355	.....	.....	292,603	.....
Parts of.....	"	.....	519,379	.....	.....	750,966	.....
Automobiles.....	No.	13,475	6,756,395	501.40	12,579	6,078,668	483.24
" parts of.....	\$	.....	363,178	.....	.....	672,060	.....
Bicycles.....	No.	116	4,692	40.45	580	50,804	87.75
" parts of.....	\$	.....	15,447	.....	.....	5,877	.....
Total.....			48,268,148			63,837,681	

**Exports of Iron and Steel Goods, the Product of Canada, during the
Calendar Years 1913 and 1914.**

		1913.			1914.		
		Quantity.	Value.	Average value.	Quantity.	Value.	Average value.
Stoves.....	No.	1,371	\$ 23,858	\$ 17.40	4,198	\$ 25,149	\$ 5.99
Gas buoys and parts of.....	"	"	35,462	"	"	21,009	"
Castings, n.e.s.....	"	"	61,362	"	"	24,218	"
Pig-iron.....	Tons	6,326	351,646	55.59	14,198	201,145	14.17
Ferro-silicon and ferro-compounds.....	"	"	"	"	4,865	285,221	57.45
Wire and wire-nails.....	"	"	"	"	9,663	355,781	36.82
Machinery (linotype machines).....	"	"	3,631	"	"	5,562	"
Machinery, n.e.s.....	"	"	435,333	"	"	344,689	"
Sewing machines.....	No.	8,122	114,438	14.09	2,109	31,392	14.88
Washing machines, etc.....	"	"	15,872	"	"	33,986	"
Typewriters.....	No.	3,048	201,763	66.20	3,085	200,441	65.61
Scrap iron and steel.....	Tons	45,556	483,813	10.62	35,405	446,337	12.60
Hardware, tools, etc.....	"	"	101,990	"	"	95,197	"
Hardware, n.e.s.....	"	"	70,767	"	"	190,763	"
Steel and manufactures of.....	"	"	1,051,004	"	"	2,931,908	"
Agricultural implements—							
Mowing machines.....	No.	24,044	847,253	35.24	21,437	725,831	33.83
Reapers.....	"	5,604	317,716	56.69	3,910	223,228	56.96
Drills.....	"	10,364	634,121	61.18	3,961	259,701	65.56
Harvesters.....	"	23,194	2,439,319	105.17	19,474	2,015,996	103.52
Ploughs.....	"	15,450	465,505	30.13	12,896	324,349	25.15
Harrows.....	"	7,300	127,482	17.46	6,252	92,556	14.80
Hay rakes.....	"	9,846	247,445	25.13	6,524	196,519	30.12
Seeders.....	"	"	"	"	32	1,810	56.56
Threshing machines.....	"	1,928	712,270	369.43	1,965	799,307	406.77
Cultivators.....	"	7,795	201,758	25.88	6,030	146,668	24.32
All other.....	"	"	503,235	"	"	290,520	"
Parts of.....	"	"	915,142	"	"	712,414	"
Automobiles.....	"	5,997	3,395,382	566.18	5,621	3,011,327	535.73
parts of.....	"	"	210,623	"	"	384,428	"
Bicycles.....	"	90	8,058	89.53	111	10,021	90.28
parts of.....	"	"	16,901	"	"	3,973	"
Total.....			13,999,140		14	21,746	

Annual Exports of Iron and Steel Products since 1884.

Year.	Value.	Year.	Value.	Year.	Value.
1884.....	\$186,854	1895.....	\$ 174,778	1906.....	\$ 1,552,963
1885.....	115,158	1896.....	284,296	1907.....	1,607,368
1886.....	228,027	1897.....	592,849	1908.....	2,098,138
1887.....	251,221	1898.....	593,060	1909*.....	7,172,413
1888.....	184,214	1899.....	975,377	1910.....	7,895,489
1889.....	144,909	1900.....	1,570,013	1911.....	9,907,281
1890.....	133,724	1901.....	1,837,179	1912.....	10,682,484
1891.....	152,919	1902.....	2,751,324	1913.....	13,999,149
1892.....	155,597	1903.....	3,058,320	1914.....	14,391,746
1893.....	214,636	1904.....	1,318,482	1915.....	48,268,148
1894.....	167,183	1905.....	1,287,558	1916.....	63,837,681

*Agricultural implements, automobiles, and bicycles included in 1907 and subsequent years.

Separate records, covering a period of years, of the annual exports of pig-iron and ferro-alloys and of scrap iron and steel have already been given on previous pages.

The total value of the imports of iron and steel goods during the calendar year 1916, subject to the explanation already made in respect to certain products not recorded under the usual and regular classification and there-

fore omitted from this record, was \$129,090,241, as compared with a value of \$74,308,983 imported during the calendar year 1915, \$80,063,679 imported during 1914, and \$145,226,972 imported during 1913. Previous to 1913 the record is shown covering the fiscal years. During the twelve months ending March, 1913, the imports were valued at \$148,579,272, as against imports valued at \$105,614,450 during the twelve months ending March, 1912.

Between 1895 and 1904, the imports of iron and steel increased from about \$8,600,000 to over \$40,000,000. During the next five years there was comparatively little change, but from 1909 to 1913 the increase was again very rapid. During the latter part of 1913 there was, however, a distinct check to imports with the heavy falling off shown in 1914 and 1915. A detailed statement of the imports of iron and steel during the calendar years 1915 and 1916 is shown in the general tables of imports of iron and steel goods following.

The imports during 1916 subject to duty were valued at \$107,863,317, the imports free of duty during the same period being valued at \$21,226,931. The imports during 1915 subject to duty were valued at \$62,842,171 and the imports free of duty during the same period were valued at \$11,466,812. These imports include all classes of manufactured iron and steel goods as well as those of cruder form. In many cases the values only of the imported goods are given, so that a total tonnage of imports cannot be stated. In the case of most of the cruder materials, however, the quantities are given and a compilation of these showing the importation of the cruder forms of iron and steel since 1909 is shown in the accompanying tables. Thus, during the twelve months ending December, 1916, there were imported 864,916 tons of iron and steel valued at \$52,114,258, or an average of \$60.25 per ton, together with other iron and steel goods of which the quantities are not stated, valued at \$76,975,910.

During the twelve months ending December, 1915, there were imported 771,007 tons of iron and steel valued at \$27,504,685, or an average value per ton of \$35.67, together with other iron and steel goods of which the quantities are not stated, valued at \$46,804,298.

Summary of Imports of Iron and Steel,* 1915 and 1916.

Material.	1915			1916.		
	Tons.	Value.	Average.	Tons.	Value.	Average.
Pig-iron.....	47,482	\$ 624,200	\$13.15	58,330	\$ 1,145,150	\$ 19.63
Ferro-products and chrome steel ingots, blooms, billets, puddled bars, etc.....	13,905	820,976	59.04	14,840	1,893,879	127.62
Scrap iron and scrap steel.....	54,118	1,270,687	23.48	(b) 20,87	895,446	42.89
Plates and sheets.....	11,477	127,614	11.12	11,57	179,731	15.53
Tin plates and sheets.....	224,484	7,647,560	34.07	225,439	1,806,096	56.81
Bars, rods, hoops, bands, etc.....	45,165	2,883,951	63.85	47,543	5,221,163	90.73
Structural iron and steel.....	156,990	5,829,088	37.13	198,652	13,762,807	67.27
Rails and connexions.....	126,780	3,615,333	28.52	158,905	8,042,127	50.61
Pipe and fittings (a).....	12,481	379,218	30.38	14,003	470,023	33.57
Nails and spikes.....	4,489	110,978	24.72	5,399	165,576	30.67
Wire (a).....	1,522	86,876	57.08	4,103	283,007	68.98
Forgings, castings, and manufac- tures.....	49,529	2,175,834	43.93	66,115	4,305,674	65.12
Total.....	22,585	1,932,370	85.56	29,137	3,343,559	114.75
Other iron and steel products valued at.....	771,007	27,504,685	35.67	(b) 864,916	52,114,258	60.25
Total value of imports of iron and steel.....		46,804,298			76,975,900	
		74,308,983			129,090,248	

*For details of these items see general tables following.

(a) There are additional imports of pipe and wire included under "other iron and steel products."

(b) This figure should be increased by nearly 100,000 tons and the value in proportion because of the imports of steel billets entered under a general classification. See explanation under steel billets page No 24.

Summary of Imports of Iron and Steel, 1913 and 1914.

Material.	1913.			1914.		
	Tons.	Value.	Average.	Tons.	Value.	Average.
Pig-iron.....	236,769	\$ 3,247,405	\$13.72	78,680	\$ 982,189	\$12.48
Ferro-products and chrome steel... Ingots, blooms, billets, puddled bars etc.....	30,678	970,100	31.62	22,271	560,686	25.18
Scrap iron and scrap steel.....	52,872	1,212,314	22.93	13,049	259,703	19.90
Plates and sheets.....	104,747	1,488,255	14.21	27,688	337,406	12.19
Tin plates and sheets.....	365,675	13,965,865	38.19	227,633	7,877,729	34.61
Bars, rods, hoops, bands, etc.....	58,031	3,954,615	68.14	50,791	3,151,385	62.05
Structural iron and steel.....	277,879	10,195,280	36.69	148,368	5,138,193	34.63
Rails and connexions.....	439,871	12,739,954	28.96	160,538	4,214,520	26.25
Pipe and fittings (a).....	182,421	5,120,830	28.07	42,064	1,116,773	26.55
Nails and spikes.....	30,663	847,922	27.65	15,614	395,466	25.33
Wire (a).....	7,584	360,489	47.53	4,864	210,098	43.20
Forgings, castings, and manufac- tures.....	70,712	3,688,660	52.16	66,280	3,205,635	48.37
Total.....	32,604	2,090,533	64.12	20,339	1,375,590	67.63
Other iron and steel products valued at.....	1,890,506	59,882,222	31.67	878,179	28,825,373	32.82
Total value of imports of iron and steel.....		85,344,750			51,238,306	
		145,226,972			80,063,679	

(a) There are additional imports of pipe and wire included under "other iron and steel products."

Summary of Tonnage of Iron and Steel Imported 1909-1913.

(IN SHORT TONS.)

Material.	TWELVE MONTHS ENDING MARCH.				
	1909.	1910.	1911.	1912.	1913.
Pig-iron.....	58,591	159,506	270,102	201,112	291,904
Ferro-products and chrome steel.....	13,206	15,153	19,182	18,548	23,378
Ingots, blooms, billets, puddled bars, etc.....	8,887	36,819	48,395	89,190	86,743
Scrap iron and scrap steel.....	26,212	28,797	53,824	78,378	103,317
Plates and sheets.....	116,610	200,575	205,690	243,461	376,633
Tin plates and sheets.....	26,859	30,866	44,025	45,802	64,571
Bars, rods, hoops, bands, etc.....	73,261	117,159	183,865	195,139	270,878
Structural iron and steel.....	162,735	195,748	232,585	268,572	377,551
Rails and connexions.....	32,543	55,183	36,690	97,062	156,318
Pipe and fittings.....	18,309	16,705	28,831	26,627	40,987
Nails and spikes.....	1,611	3,476	3,374	7,201	11,420
Wire.....	39,375	68,211	64,850	69,597	80,846
Forgings, castings, and manufactures.....	14,394	18,093	24,523	27,668	47,195
Total.....	592,593	955,291	1,215,936	1,368,357	1,939,743

Annual Imports of Iron and Steel Products since 1895.

Year.	Value.	Year.	Value.
1895(a).....	\$ 8,684,024	1906(a).....	\$ 42,210,305
1896.....	10,206,759	1907*.....	44,739,403
1897.....	11,063,156	1908(b).....	64,257,238
1898.....	16,340,992	1909.....	42,075,797
1899.....	19,463,329	1910.....	62,356,974
1900.....	27,926,766	1911.....	88,179,152
1901.....	25,023,453	1912.....	105,614,450
1902.....	31,591,488	1913(b).....	148,579,272
1903.....	39,536,867	1913(c).....	145,226,972
1904.....	40,449,175	1914.....	80,063,679
1905.....	40,820,233	1915.....	74,308,983
		1916(c).....	129,090,248

*Nine months ending March, 1907.

(a) Twelve months ending June from 1895 to 1906 inclusive.

(b) Twelve months ending March from 1908 to 1913 inclusive.

(c) Twelve months ending December from 1913 to date.

Imports of Iron and Steel Goods Subject to Duty, 1915 and 1916.

CALENDAR YEAR, 1915.				CALENDAR YEAR, 1916.			
Material.	Quantity	Value	Value per unit.	Quantity	Value.	Value per unit.	
Agricultural implements, n.o.p., viz.—		\$			\$		
Binding attachments		43,089			1,408		
Cultivators and weedeers and parts of		47,505			89,754		
Drills, seed	4,033	19,639	\$ 11.78	9,610	89,754	\$ 9.34	
Farm, road, or field rollers	242	3,383	14.15	252	4,999	19.84	
Forks, pronged	6,978	53,354	0.48	25,032	11,418	0.46	
Harrows and parts of		330,602			154,393		
Harvesters, self-binding	3,041	4,507	108.71	6,185	714,876	115.58	
Hay loaders	105	1,402	42.92	94	5,045	53.67	
Hay tedders	48	1,302	27.13	8	302	37.75	
Hoes	3,894	1,131	0.29	12,089	3,252	0.27	
Horse rakes	997	18,749	18.81	1,237	28,022	22.65	
Knives, hay or straw	2,530	87	0.31	4,817	2,323	0.48	
Knives edging	2,340	87	0.38	2,656	712	0.27	
Lawn mowers	10,486	41,149	3.92	9,001	38,574	4.29	
Manure spreaders	487	31,063	63.78	1,080	71,262	65.98	
Mowing machines	2,189	72,431	33.09	1,659	57,656	34.75	
Ploughs and parts of		524,124			1,060,602		
Post hole diggers	2,862	2,535	0.89	3,808	2,950	0.77	
Potato diggers	543	19,393	35.71	315	9,541	30.29	
Rat s	9,878	2,473	0.25	11,127	2,558	0.23	
Reapers	155	8,369	53.99	346	11,794	34.09	
Scythes	2,884	14,873	5.16	4,177	21,832	5.23	
Sickles or reaping hooks	399	669	1.68	588	1,133	2.03	
Snaths	241	1,037	4.30	282	1,301	4.46	
Spades and shovels of iron or steel, n.o.p.	3,038	8,115	2.74	3,092	13,292	4.30	
Spades and shovel blanks, and iron or steel cut to shape for the same	2,343	1,935	0.83	621	999	1.61	
Parts of agricultural implements paying 12½, 17½, and 17½ per cent*		90,310			173,176		
Parts of agricultural implements paying 12½, 17½, and 20 per cent, n.o.p.		108,982			202,602		
All other agricultural implements, n.o.p.		71,776			62,622		
Anvils and vices		44,559			76,591		
Cart or wagon skains or boxes	51.4	5,787	112.59	59.1	7,641	129.29	
Springs, n.o.p., and parts thereof, of iron or steel, for railway, tramway, or other vehicles		166,135			268,013		
Axles and axle parts, n.o.p., and axle blanks and parts thereof, of iron or steel for railway, tramway, or other vehicles		751,344			1,699,319		
Bar iron or steel, rolled, whether in coils, bundles, rod or bars, comprising rounds, ovals, squares, and flats, n.o.p.	57.813	1,858,487	32.15	82,236.6	4,001,597	48.66	
Butts and hinges, n.o.p.		55,071			81,072		

*12½, 12½, and 12½ per cent from April, 1915.

Imports of Iron and Steel Goods Subject to Duty.—Continued.

Material.	CALENDAR YEAR, 1915.			CALENDAR YEAR, 1916.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Canada plates, Russia iron, terne plate, and rolled sheets of iron or steel coated with zinc, or other metal, of all widths or thicknesses, n.o.p.	9,363.3	\$ 487,797	\$ 52.10	14,017.3	\$ 891,250	\$ 63.60
Castings, iron or steel, n.o.p.		994,956			1,061,668	
Castings, iron or steel, n.o.p., when imported by manufacturers of mowers, binders, harvesters and reapers for use exclusively in their own factories.	4,489	121,232	24.72	5,398.6	164,475	30.47
Cast-iron pipe of every description.	5,236	110,978	10.47	1,225	165,576	15.62
Chain, coil chain, chain links, including repair links and chain shackles, of iron or steel, 1½ of an inch in diameter and over.	343.8	53,778	90.72	203.5	19,134	123.07
Chains, coil chains and links, including repair links and chain shackles of iron or steel, n.o.p.	943.7	31,191	75.74	1,183	25,044	93.09
Chains, n.o.p.	24	71,479	133.04		110,121	
Tacks, shoe.	151.2	80,668	164.65		153,979	
Nails, brads, spikes, and tacks of all kinds, n.o.p.	46	3,533	3.217.87		1,660	241.35
Engines, etc.		24,895		177.4	42,859	241.60
Locomotives for railways.		148,022		69	682,270	9,887.97
Locomotive parts.		80,510			130,279	
Motor cars for railways and tramways.	78	42,451	544.24	67	47,311	706.13
Engines, for.	13	55,785	4,291.15	5	7,720	1,544.00
Engines, gasoline and gas.	20,981	2,786,559	132.81	39,856	4,306,003	108.04
Engines, steam.	124	142,533	1,149.46	110	131,994	1,199.04
Boilers, steam and parts of.		86,839			234,877	
Boilers, n.o.p., and parts of.		117,057			216,881	
Fire extinguishing machines, including sprinklers for fire protection.		94,735			118,400	
Fittings, iron or steel, for iron or steel pipe of every description.		485,205			636,241	
Flat eye-bar blanks, not punched or drilled, for use exclusively in the manufacture of bridges or of steel structural work, or in car construction.	4,070	267,644	65.70	944	111,526	118.14
Ferro-silicon, spiegel-eisen and ferro-manganese.	120	3,263	27.19		835	105.70
Ferro-silicon, containing not more than 15 per cent silicon.	(a) 2	35,214	41.92	1,563.7	41,456	26.51
Ferro-silicon, containing not more than 15 per cent silicon.	(b) 840	35,214	288.28	547.4	437,587	799.39
Spiegel-eisen and ferro-manganese containing not more than 15 per cent manganese and other ferro-alloys, n.o.p.	156	44,972				
Forgings of iron or steel of whatever size or shape, or in whatever stage of manufacture, n.o.p., including castings, and components of or polished, and hammered, and cold-chambered iron or steel bars or shafts, n.o.p.	6,697.3	814,063	121.55	5,403.6	887,474	161.84
Hardware, viz. builders', cabinet-makers', upholsterers', harness-makers', saddlers', and carriage hardware, including curry-combs, n.o.p.		524,876			646,622	
Horse, mule, and ox shoes.		23,318			33,997	
Iron or steel billets, weighing not less than 60 pounds per lineal yard.		715,493			495,625	
Iron or steel ingots, cogged ingots, blooms, alaba, puddled bars and loops, or other forms, n.o.p., less finished than iron or steel bars, but more advanced than pig-iron except castings.	32,209.9		22.21	12,626.7		39.25
Iron or steel bridges or parts thereof, iron or steel structural work, columns, shapes or sections, drilled, punched, or in any further stage of manufacture, than as rolled or cast, n.o.p.	10,979.9	316,814	28.85	7,946.7	385,816	47.29
		49,284			1,740.8	

Iron in pig.....	Tons	\$	13 15	\$	57 337	\$	181 128 557	\$	10 68
Iron in pig charcoal.....					793		8 10 593		20 92
Locks of all kinds.....							296 431		
Machinery, etc.—	No.								
Automobiles and motor vehicles of all kinds.....	No.	6,210		4,223 213	12 897		8 056 716		702 23
Cranes and derricks.....	No.	90		3 096 267	165		6 481 703		2 508 82
Dental engines, electric.....	No.	59		232 508	131		413 986		91 92
Fanning mills.....	No.	773		5 571	2 084		12 186		17 32
Grain crushers.....	No.	193		14 718	157		36 537		256 24
Hay presses.....	No.	143		6 579	257 64		4 780		
Windmills and complete parts thereof.....	No.			36 843			61 230		
Oil crushers and rock crushers; stamp mills, cornish and belted rolls, rock drills, air compressors, and percussion coal cutters.....	No.			38 845			57 143		
Portable machines.....	No.	947		301 544			583 991		
Motor or feed cutters.....	No.			33 868	1 510		51 392		34 01
Internal power for farm purposes.....	No.	1		23					
Portable engines with boilers in combination and traction engines for farm purposes.....	No.	497		870 756	2 140		2 668 230		1 246 84
Portable sawmills and planing mills.....	No.	10		4 270	5		2 732		536 40
Steam shovels and electric shovels.....	No.	25		99 681	15		58 212		3 880 80
Threshing machine separators.....	No.	983		616 258	5 895		1 235 408		652 62
Threshing machine separators, parts of, including wind-stacks, barges, weighing, and self-feeders for same, and finished parts thereof for repairs, when imported separately.....	No.			279 225			440 501		
All other portable machines, n.o.p., and parts of.....	No.	79		16 703	72		70 203		451 17
Sewing machines.....	No.	14 814		31 369	18 010		32 628		20 95
Sewing machines, parts of.....	No.	590		328 582			147 280		
Adjoining machines.....	No.	500		92 614			147 280		
Machines, typewriting.....	No.	5 622		134 894	1 354		262 560		209 53
Machines specially designed for ruling, folding, binding, embossing, creasing, or printing paper or cardboard, when for use exclusively by printers, bookbinders, or stationers.....	No.			297 125	11 835		642 719		54 31
including parts thereof, composed wholly or in part of iron, steel, brass, or wood.....	No.								
Printing presses and lithographic presses.....	No.			136 999			266 814		
Type-making accessories for printing presses.....	No.			224 551			364 789		
Cement making machinery.....	No.			24 811			13 278		
Coal handling machinery.....	No.			20 053			40 515		
Paper and pulp mill machinery.....	No.			36 764			60 468		
Rolling mill machinery.....	No.			443 959			750 227		
Sawmill machinery.....	No.			150 841			225 351		
Machinery of a class or kind not made in Canada and parts thereof advanced for carding, spinning, weaving, braiding, or knitting fibrous material, when imported by manufacturers for such purpose.....	No.			137 086			169 250		
All machinery composed wholly or in part of iron or steel, n.o.p., and iron or steel integral parts of.....	No.			843 040			1 518 080		
Machines, washing, ironing.....	No.	7 120		11 012 673	8 69		16 924 492		15 02
Nails and spikes, common and sheathing nails.....	No.	45 4		61 848	57 99		137 752		127 97
Railway spikes, cut (ordinary builders).....	No.	41 3		2 601	18		2 069		53 00
Nails, wire of all kinds, n.o.p.....	No.	298 7		1 619	34 43		1 494		49 38
	No.	461 4		25 102	63 86		31 838		62 52
	No.			29 466			202 197		

(a) Three months, January, February, March.

(b) Nine months, April to December inclusive.

Imports of Iron and Steel Goods Subject to Duty. --Continued

Material.	CALENDAR YEAR, 1915.			CALENDAR YEAR, 1916.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Pumps, band, n.o.p.	21,630	\$ 112,010	\$ 5 18	26,309	\$ 162,380	\$ 6 14
Pumps, power and parts of	3,804	607,391	159 67	5,169	842,701	160 67
Iron and steel railway bars or rails of any form, punched or not, n.o.p., for railways, which term for the purposes of this item shall include all kinds of rails, street railways and tramways, even although they are used for private purposes only, and even although they are not used or intended to be used in connection with the business of common carrying of goods or passengers.	10,420	297,598	28 56	11,227	444,802	39 71
Railway tie-plates.	1,790	69,617	38 93	2,106 8	97,819	46 41
Railway tie-plates.	271	11,943	44 07	669	27,402	40 96
Rolled iron or steel angles, tees, beams, channels, girders and other rolled shapes or sections, not punched or drilled or further manufactured than rolled, n.o.p.	32,770 7	859,989	26 24	46,082 2	2,369,857	49 29
Rolled iron or steel beams, channels, angles and other rolled shapes of iron and steel, not punched, drilled or further manufactured than rolled, weighing not less than 35 pounds per lineal yard, not being square, flat, oval, or round shaped, and not being railway bars or rails.	57,221 8	1,552,853	27 14	73,043	3,596,956	49 15
Rolled iron or steel hoops, band, scroll, or strip, 12 inches or less in width, No. 13 gauge and thicker, n.o.p.	3,152 3	103,006	32 68	3,765 2	188,872	50 16
Rolled iron or steel hoops, band, scroll, or strip, No. 14 gauge and thinner, galvanized or coated with other metal or not, n.o.p., including drawn iron or steel of this description for the manufacture of mats.	77 1	3,053	39 60	119	6,639	55 79
Rolled iron or steel sheets or plates, sheared or unsheared, and skelp iron or steel, sheared or rolled in grooves, n.o.p.	11,365 7	518,920	45 66	16,152 7	1,140,091	70 56
Rolled iron or steel plates not less than 30 in. in width and not less than 1 in. in thickness, n.o.p.	16,018 5	476,898	29 77	24,670 7	1,468,617	59 53
Rolled iron or steel sheets, polished or not, No. 14 gauge and thinner, n.o.p.	22,610 9	701,933	31 04	28,241 4	1,562,178	55 32
Rolled iron or steel rods in the coil of iron or steel not over 1 inch in diameter when imported by wire manufacturers for use in making wire in the coil in their own factories.	37,549 9	1,596,213	42 74	57,843 5	3,612,610	62 24
Rolled iron wire rods in the coil of iron or steel not over 1 inch in diameter when imported by wire manufacturers for use in making wire in the coil in their own factories.	96 3	5,445	56 54	111 5	9,464	84 88
Rolled round rods in the coils of iron or steel for the manufacture of chains.	69,653 9	1,641,728	23 57	64,811	3,008,719	46 41
Sad or smoothing hatters' and tailors' irons, not plated.	2,185 1	54,114	24 76	1,335 2	60,143	45 27
Sad or smoothing hatters' and tailors' irons, not plated.		3,563	6 99		62,176	
Screws, iron and steel, commonly called wood screws n.o.p., including lag or coach screws, plated or not, and machine or other screws n.o.p.		41,799			177,962	
Scales, balances, weighing beams, and strength-testing machines of all kinds.		52,497			1,848,844	
Shafting, round, steel, in bars not exceeding 2 1/2 in. diameter.		75,942			251,964	
Shafting, round, steel, in bars not exceeding 2 1/2 in. diameter.	1,173 7	50,015	42 61	3,396 2	23,115	7 4 19
Sheets or plates of steel, cold rolled with sheared edges over 14 gauge, and not less than 1 1/2 in. wide for the manufacture of mower bars, hinges, typewriters, and sewing machines.		12,599			23,115	
Sheets, flat, of galvanized iron or steel.	507 2	23,132	45 61	716 7	49,964	69 71
Sheets, iron or steel, corrugated, galvanized.	17,863 2	1,119,524	62 16	10,600 4	919,089	86 16
Sheets, iron or steel, corrugated, not galvanized.	65 7	4,182	63 65	260 5	23,567	90 47
Skates, of all kinds, roller or other, and parts thereof.	0 7	45	64 29	32 6	2,430	74 54
Skates, of all kinds, roller or other, and parts thereof.		31,920			31,063	

Steel iron or steel, sheared or rolled in grooves, imported by manufacturers of wrought iron or steel pipe, for use exclusively in the manufacture of wrought iron or steel pipe in their own factories......Tons	100,616 4	\$2,268,976	\$ 22 55	72,021 9	83,123 131	\$ 43 36
Steel billets, n.o.p......Tons	10,928 4	236,380	21 81	302 9	14,085	46 24
Stoves, of all kinds, for coal, wood, oil, spirits or gas......Tons		253,194			340 494	
Stove urns of metal, and dovetails, chaflet and hinge tubes of tin for use in the manufacture of stoves......Tons		9,801			16,861	
Switches, frogs, crossings, and intersections for railways......Tons		39,317			100 670	
Tubing:.....Tons						
Wrought or seamless tubing, plain or galvanized, threaded and coupled or not, with 10 in. in diameter, n.o.p.		112,692			91,683	
Wrought or seamless tubing, plain or galvanized, threaded and coupled, or not, with 10 in. in diameter, n.o.p.		74,893			263,723	
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled, or not, 4 in. or less in diameter, n.o.p.		109,536			278,948	
Seamless steel tubing, valued at not less than 34 cents per lb.	384 0	56,117	147 12	831 1	156,113	163 72
Rolled or drawn square tubing of iron or steel, adapted for use in the manufacture of agricultural implements		94			2,272	
Iron or steel pipe or tubing, plain or galvanized, riveted, corrugated or otherwise specially manufactured, including lockjoint pipe, n.o.p.		181,607			300,268	
Iron or steel pipe, not built or lap welded, and wire bound wooden pipe, not less than 30 in. internal diameter when for use exclusively in alluvial gold mining		597			195,776	
Ware—Agate, granite, or enamelled iron or steel ware.		117,215				
Ware—Iron or steel hollow ware, plain black or coated, n.o.p., and nickel and aluminum kitchen or household hollow ware, n.o.p.		150,063			134,800	
Wire ball ties		5,401			6,524	
Wire bound wooden pipe, n.o.p.		38			210	
Wire cloth or woven wire and netting of iron and steel		204,085			200,240	
Wire, crucible cast steel, valued at not less than 6 cents per lb.	136 7	47,619	348 35	183 5	94,015	512 34
Wire buckhorn strip fencing, woven wire fencing, and wire fencing, of iron and steel n.o.p., not to include woven wire or netting made from wire, smaller than No. 14 gauge, not to include fencing of wire larger than No. 9 gauge.		17,182			15,689	
Wire, single or several, covered with cotton, linen, silk, rubber, or other material, including cable so covered.		29,778			43,562	
Wire of iron and steel all kinds, n.o.p.	2 60	176,657	57 66	4,120 1	203,276	75 19
Wire, galvanized or twisted wire clothes lines, picture or other twisted wire, and wire cables, n.o.p.		152,674			410,448	
Iron or steel nuts, rivets, or bolts with or without threads, nut, bolt, and hinge blanks, and T and strap hinges of all kinds, n.o.p.	1 80	27 44	88 17	2 618 4	446,919	164 08
Iron or steel scrap, wrought, being waste or refuse, including punchings, cuttings, and clippings of iron or steel plates or sheets having been in actual use.		156,000			429,602	
tin plate bars, blooms, and rolls, the same not having been in actual use.	5 911 7	71,859	12 16	10,401 2	164,267	15 56
Knives and forks of steel, plated or not, n.o.p.		94,585			195,425	
All other cutlery, n.o.p.		180,145			206,105	
Guns, rifles, including air guns and air rifles (not being toys), muskets (cartridges, pistols, revolvers, or other firearms)		311,813			41,885	
Bayonets, swords, fencing foils, and masks		484,149			674,748	
Needles of any material or kind, n.o.p.		11,331			18,818	
Steel, chrome steel	146 6	136,480	93 21	63 4	234,304	226 00
Steel plate, universal mill or roller edge plates of steel over 12 in. wide, imported by manufacturers of bridges or of structural work, or for use in other construction	24,684 8	13,664	34 4	19,715 8	11,120 608	56 84
Steel in bars or sheets to be used exclusively in the manufacture of shovels when imported by the manufacturers of shovels	1,794 1	849,597	26 40	2,431 1	991,463	40 01

Imports of Iron and Steel Goods Subject to Duty.—Continued.

Material.	CALENDAR YEAR, 1915.			CALENDAR YEAR, 1916.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Rolled iron or steel, or cast steel in bars, bands, hoops, scroll, or strip, sheet, or plate of any size, thickness, or width, galvanized or coated with any material or not, and steel blanks for the manufacture of milling cutters, when of greater value than 34 cents per pound	7,898.8	\$1,104,073	\$ 139.78	23,937.2	\$3,656,337	\$ 152.75
Steel balls adapted for use in bearings of machinery and vehicles		22,691			51,521	
Flat steel, solid rolled, not over 1/4 in. thick, for the manufacture of cups and cones for steel wood bearings	39.7	2,654	66.85	32.8	2,749	83.81
Tools and implements		2,468			5,570	
Adze, cleavers, hatchets, wedges, hammers, crowbars, cant-dogs, and track tools, picks, mattocks and eyes and poles for the same.		22,995			41,444	
Saws	1,549	8,363	5.40	1,931	12,353	6.40
Files and rasps, n.o.p.		80,996			107,554	
Tools, hand of all kinds, n.o.p.		97,529			162,531	
Knife blades or blanks, and table forks of iron or steel, in the rough, not handled, filed, ground, or otherwise manufactured		510,268			839,181	
Manufactures, articles or wares of iron or steel, or of which iron and steel (or either) are the component materials of chief value, n.o.p.		126			658	
		5,458,284			8,014,718	
		62,842,171			107,863,317	

Imports of Iron and Steel Goods, Free of Duty, 1915 and 1916.

Materials.	CALENDAR YEAR, 1915.			CALENDAR YEAR, 1916.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Anchors for vessels.	283.0	\$ 27,669	\$ 97.77	354.9	\$ 39,747	\$111.99
Canada plates, Russia iron, terne plates and rolled sheets of iron, or steel coated with zinc, spelter or other metal, of all widths or thicknesses, n.o.p.	2,190.8	115,003	52.49	524.3	42,976	81.97
Chain coil, coil chain links including repair links and chain shackles of iron or steel 1½ in. in diameter and over.	50.3	3,939	78.31	50.2	4,293	85.52
Chain, malleable sprocket or link belting when imported by manufacturers of agricultural implements for use in the manufacture of such implements in their own factories.		89,781			159,122	
Cream separators—materials which enter into the construction and form part of, when imported by manufacturers of cream separators to be used in the manufacture thereof, and articles of metal for use in the manufacture of cream separator parts.		208,855			348,186	
Ferro-manganese and spiegeleisen containing over 15 per cent manganese.	12,640	216,313	57.26	1,658	249,333	110.58
Gas buoys—The following articles and materials, when imported by manufacturers of automatic gas buoys and automatic gas beacons, for use in the manufacture of such buoys and beacons for the Government of Canada or for export, viz.: Iron or steel tubes over 16 in. in diameter; flanged and dished steel heads made from boiler plate, over 5 feet in diameter; hardened steel balls, not less than 3 in. in diameter; acetylene gas lanterns and parts thereof, and tobac tin bronze in bars or rods.		723,738			1,399,660	
Gun barrels, in single tubes, forged, rough bored.		10,160			23,237	
Boiler plate of iron or steel not less than 30 in. in width, and not less than ½ in. in thickness, for use exclusively in the manufacture of boilers.	5,758.3	162,517	24.22	7,786.3	535,137	68.73
Flat galvanized iron or steel sheets.	7,022.5	446,538	63.59	861.6	56,259	65.30
Roller iron and steel, and cast steel in bars, band, hoop, scroll or strip, sheet or plate of any size, thickness, or width; galvanized or coated with any material or not, and steel blanks for the manufacture of milling cutters, when of greater value than 3½ cents per lb.						
Roller iron or steel sheets in strips, polished or not, 14 gauge and thinner, n.o.p.	1,663.1	380,135	228.57	3,922.5	1,141,871	291.11
Roller iron or steel, hoop, band, scroll or strip, No. 14 gauge or thinner, galvanized or not, polished, lacquered or otherwise manufactured, when imported by manufacturers of iron or brass bedsteads, for use exclusively for the manufacture of such articles in their own factories.	2,130.3	118,107	55.44	1,344.9	109,708	81.57
Iron tubing, brass covered, not over 2 in. in diameter, and brass trimmings, not polished, lacquered or otherwise manufactured, when imported by manufacturers of iron or brass bedsteads, for use exclusively for the manufacture of such articles in their own factories.	144.5	9,334	64.60	57.1	6,104	106.90
Iron tubing, brass covered, not over 2 in. in diameter, in the rough where imported by manufacturers for use only in their own factories, in the manufacture of towel bars, bath tub rails and clothes carriers.		137,635			228,068	
Iron tubing, lacquered or brass covered, not over 2 in. in diameter, brass covered rods and brass trimmings, when imported by manufacturers of carriage rails, for use exclusively in the manufacture of such articles in their own factories.		82			406	
Iron tubing, lacquered or brass covered, for manufacture of extension rods for windows.		4,604			3,625	
Iron or steel beams, sheets, plates, angles, knees, masts or parts thereof and cable chains for wooden, iron, steel or composite ships or vessels.		5,756			6,295	
Totals	12,102.7	352,894	29.16	20,093.7	1,061,706	52.84

Imports of Iron and Steel Goods Free of Duty.—Continued.

Material.	CALENDAR YEAR, 1915.			CALENDAR YEAR, 1916.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Iron and steel bands, strips or sheets, No. 14 gauge or thinner, coated, polished or not, and rolled iron or steel sections, not being ordinary square, flat or round bars, when imported by manufacturers of saddlery, hardware and hames, for use exclusively in the manufacture of such articles in their own factories.....	3,841.4	\$ 7,354 247,286	\$ 64.37	9,624.1	\$ 50,485 900,553	\$ 93.57
Locomotive and car wheel tires of steel in the rough.....						
Manufactured articles of iron or steel or brass, which, at the time of their importation, are of a class or kind not manufactured in Canada, imported for use in the construction or equipment of ships or vessels.....		237,376			193,240	
Scrap iron and scrap steel, old, and fit only to be re-manufactured, being part of or recovered from any vessel wrecked in waters subject to the jurisdiction of Canada.....	429.3	1,977	4.61	47.5	350	7.37
Sheep iron or steel, sheared or rolled in grooves, not over 4½ in. wide, for the manufacture of rolled iron tubes not over 14 in. in diameter.....	935.3	24,204	25.88	1,648.7	79,579	48.27
Machinery:—						
Articles of metals as follows when for use exclusively in mining or metallurgical operations, viz: coal cutting machines, except percussion coal cutters, coal head-ropers, coal augers, rotary coal drills, cone drills; miners safety lamps and parts thereof; also electric or magnetic machines for separating or concentrating ores; electric or magnetic machines for separating or concentrating iron ores; furnaces for the smelting of copper, zinc, and nickel ores; converting apparatus for metallurgical processes in metals; copper plates, plated or not, machinery for extraction of precious metals by the chlorination or cyanide process; amalgam separators; automatic ore samplers; automatic feeders; retorts; mercury pumps; pyrometers; bullion furnaces; amalgam cleaners; blast furnaces blowing engines; and integral parts of all machinery mentioned in this item; blowers of iron or steel for use in the smelting of ores, or in the reduction, separation, or refining of metals, rotary kilns, revolving roasters and furnaces of metal designed for roasting ore, mineral rock or clay; furnace slag trucks, and slag pots of a class or kind not made in Canada; buddles, vanners, and slime tables adapted for use in gold mining.....		347,756 14,678			933,673 66,237	
Diamond drills and parts of, not to include motive power.....		137,967			140,204	
Appliances of iron or steel, of a class or kind not made in Canada; and elevators and machinery of floating dredges, when for use exclusively in alluvial gold mining.....						
Well-drilling, and apparatus of a class or kind not made in Canada for drilling for water, natural gas or oil, and for prospecting for minerals, not to include motive power.....		8,017 1,176			3,478 1,604	
Brick-making machines.....						
Newspaper printing presses of not less value by retail than \$1,500 each, of a class or kind not made in Canada.....	33	180,349	5,465.12	60	318,054	5,300.90
Machinery or tools not manufactured in Canada up to the required standard, necessary for any factory to be established in Canada for the manufacture of rifles for the Government of Canada.....		572,850			203,958	
All materials, or parts in the rough, unfinished, and screws, nuts, bands, and springs and steel for rough, unfinished parts, to be used in rifles to be manufactured at any such factory for the Government of Canada.....		65?			730,865	
Machines, typesetting and typesetting and parts thereof, adapted for use in printing offices.....		28			613,392	

	\$	16,533			\$	434,490	
		15,240				42,627	
31		79,953	\$2,579.13	19		56,935	\$2,996.58
4,140.5		217,723	52.58	6,033.2		435,204	72.13
		22,272				32,069	
		3,912				445	
788.2		125,182	158.82	1,087.8		245,943	226.09
807		37,322	46.25	1,585.9		100,376	63.29
278.4		19,904	71.49	744		77,971	104.80
1.2		221	184.17	40.2		11,054	274.98
364.2		50,818	139.53	479.6		75,522	157.47
102.9		5,539	53.83	124		10,938	88.21
111.7		4,235	37.91	177.5		9,896	52.78
0.3		264	880.00	.3		293	976.67
906.3		38,131	42.07	950.7		42,426	44.63
45,164.8		2,883,951	63.85	57,542.5		5,221,163	90.74
9.8		1,807	184.39	14		6,347	453.36
		21,654				60,350	
		310,880				1,006,958	
11,499.6		526,347	45.77	27,934		1,800,447	64.45
8.7		2,116	243.22	41.3		1,12,694	307.36

Imports of Iron and Steel Goods Free of Duty.—Continued.

Material.	CALENDAR YEAR, 1916.			CALENDAR YEAR, 1915.		
	Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Wire, curved or not, galvanized iron or steel, Nos. 9, 12, and 13 gauge.....	32,631.7	\$1,233,572	\$ 37.80	29,785.6	\$1,727,852	\$ 58.01
Wire rope for use exclusively for rigging of ships and vessels.....	27.5	5,055	183.82	16	3,895	243.44
Wire, steel, valued at not less than 24 cents per pound when imported by manufacturers of rope for use exclusively in the manufacture of rope.....	1,191.1	110,537	92.80	1,648.5	159,591	96.81
Total.....		11,466,812			21,226,931	

A very large proportion of the imports of iron and steel into Canada having been derived from the United States, a record has been compiled from the Annual Reports of Commerce and Navigation of the United States published at Washington, showing the exports of iron and steel goods from that country to Canada.

According to this authority there was exported to Canada from the United States during the twelve months ending June 30, 1916, 992,563 tons of iron and steel goods, valued at \$39,723,162, together with other iron and steel goods, the weight of which is not given, valued at \$55,442,713, or a total value of \$95,165,875.

During the twelve months ending June 30, 1915, the corresponding exports to Canada were 596,323 tons of iron and steel goods valued at \$19,697,148, together with other iron and steel goods, the weight of which is not given, valued at \$28,713,872, or a total value of \$48,411,020.

During the twelve months ending June 30, 1914, the exports to Canada were 1,169,349 tons of iron and steel goods, valued at \$35,921,812, together with other iron and steel goods of which the weight is not given, valued at \$40,780,471, or a total value of \$76,702,283.

During the twelve months ending June 30, 1913, exports to Canada were 1,695,916 tons of iron and steel goods, valued at \$51,936,616, together with other iron and steel goods of which the weight is not given, valued at \$54,673,774, or a total value of \$106,610,390.

During the twelve months ending June 30, 1912, exports to Canada were 1,754,644 tons, valued at \$36,637,305, together with other iron and steel goods, valued at \$46,020,989, or a total value of \$82,658,294.

Exports of Iron and Steel to Canada from the United States.

Material.	TWELVE MONTHS ENDING JUNE, 1914.			TWELVE MONTHS ENDING JUNE, 1915.			TWELVE MONTHS ENDING JUNE, 1916.		
	Quantity.	Value.	Average.	Quantity.	Value.	Average.	Quantity.	Value.	Average.
Bar iron.....	6,544.2	\$ 308,248	\$47.10	2,393.0	\$ 81,766	\$ 34.17	5,056.8	\$ 220,944	\$43.69
Bars or rods of steel—									
Wire rods.....	63,108.3	1,617,930	25.64	40,961.9	937,836	22.90	77,491.4	2,200,402	28.40
All others.....	92,791.8	3,019,274	32.54	67,146.9	2,111,489	31.45	126,995.7	5,321,000	41.90
Billets, ingots, and blooms of steel.....	24,243.5	187,079	20.09	18,426.2	394,946	21.43	103,708.6	3,733,393	36.00
Bolts, nuts, rivets and washers.....	2,603.4	181,079	69.35	1,229.2	90,572	73.68	3,725.7	262,987	70.59
Hoop, band and scroll.....	9,157.1	376,999	40.35	7,114.9	299,668	42.12	11,786.4	654,689	55.55
Horseshoes.....	248.3	22,941	92.21	196.9	20,425	103.73	228.7	20,262	88.60
Nails and spikes—									
Cut.....	21.3	932	43.76	1,303.9	42,102	30.20	6.7	420	62.69
Railroad spikes.....	3,543.2	121,999	34.42	1,054.8	32,689	30.20	741.1	30,474	47.12
Wire.....	1,342.3	62,046	46.22	1,054.8	32,689	30.20	1,122.8	66,582	59.30
All others, including tacks.....	140,510.7	1,782,862	12.69	43,176.0	602,058	13.94	100,581.6	1,821,273	18.11
Pig-iron.....	(a)52,674.8	2,732,573	51.88	11,779.1	532,690	45.22	4,780.2	308,972	64.64
Pipes and fittings—									
Cast.....	5,722.7	401,980	70.24	2,615.3	180,640	69.07	1,201.9	850,258	73.99
Radiators and cast-iron heating boilers.....	129,545.9	3,415,167	26.36	8,597.1	230,111	26.77	1,406.0	116,172	83.02
Rails for railways.....	49,570.0	577,917	11.66	9,962.4	114,542	11.50	12,438.7	369,650	29.72
Scrap and old, fit only for remanufacture.....									
Sheets and plates—									
Iron, galvanized.....	26,827.5	1,595,003	59.45	24,770.9	1,471,841	59.40	27,116.8	2,309,193	85.16
Iron, all other.....	9,763.2	434,525	44.51	6,169.1	280,524	45.47	15,218.2	888,303	48.72
Steel, plates.....	141,842.1	4,245,763	29.93	77,580.4	2,253,580	29.05	134,831.7	5,113,976	37.93
Steel, sheets.....	97,516.2	3,014,796	30.92	66,360.2	1,922,088	28.96	79,206.6	3,113,493	39.31
Structural iron and steel.....	224,666.4	6,900,022	31.01	94,545.9	2,535,404	26.82	123,938.2	4,284,757	34.57
Tin plate,terne plates, and tappers tin.....	36,582.3	2,513,867	68.72	38,299.5	2,445,529	63.85	58,682.1	3,979,069	67.81
Wire and manufacture of—									
Wire, barbed.....	12,683.9	508,337	40.06	15,027.9	603,083	40.13	21,786.2	1,362,125	62.52
Wire, all other.....	37,436.5	1,476,297	39.43	42,319.3	1,611,454	38.08	43,161.0	2,312,725	53.58
Builders' hardware and tools—	1,169,349.3	35,921,812	30.72	596,323.4	19,697,148	33.03	992,563.1	39,723,162	40.02
Locks.....									
Hinges, and other builders' hardware.....									
Car wheels.....									
Castings, not elsewhere specified.....	11,696	1,08,174	9.25	3,976	54,089	13.60	16,903	1,409,414	21.90
Cutlery—									
Razors.....									
Table.....									
All other.....									
Enamelware—									
Baths, tubs.....									
Lavatories and sinks.....									
All other.....									
	1,718	25,090	14.60	916	11,905	13.00	862	9,755	11.32
		158,889			76,965			31,844	
		140,664			105,069			177,440	

Exports of Iron and Steel to Canada from the United States.—Continued.

Material.	TWELVE MONTHS ENDING JUNE, 1914.			TWELVE MONTHS ENDING JUNE, 1915.			TWELVE MONTHS ENDING JUNE, 1916.		
	Quantity.	Value.	Average.	Quantity.	Value.	Average.	Quantity.	Value.	Average.
Scales and balances.....		\$ 134,191			\$ 80,265			\$ 93,874	
Stoves, ranges and parts of.....		975,460			450,837			413,067	
Tools not elsewhere specified—									
Axes.....	No.								
Hammers and hatchets.....	70,548	38,493	\$0 55	20,183	11,288	\$ 0 56	13,048	6,724	\$ 0 52
Saws.....		38,579			13,844			14,031	
Shovels and spades.....		234,772			147,507			295,021	
All other.....		44,087			19,067			10,974	
Wire manufactures—woven wire fencing.....		1,371,832			925,052			1,351,872	
Wire manufactures—all other.....		93,370			112,226			117,340	
All other manufactures of steel.....		365,327			333,556			625,789	
		7,375,163			5,667,959			12,437,404	
		40,780,471			28,713,872			55,442,713	
Total value.....		76,702,283			48,411,020			95,165,875	

*Compiled from Commerce and Navigation of the United States, Washington, D.C.

(a) Not separately stated.

(b) Included in all other machinery and parts of.

